AN INVESTIGATION INTO THE USE

OF SOFTWARE PRODUCT METRICS

FOR COBOL SYSTEMS

THESIS

Richard Edward Boone, First Lieutenant, USAF

AFIT/GCS/ENG/97D-03

19980121 062

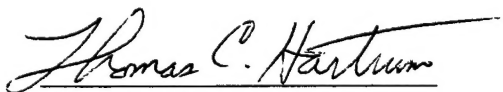Approved for public release; distribution unlimited

The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.

AN INVESTIGATION INTO THE USE

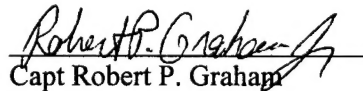OF SOFTWARE PRODUCT METRICS

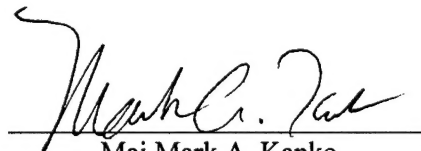FOR COBOL SYSTEMS

THESIS

1Lt Richard E. Boone

Presented to the Faculty of the Graduate School of Engineering

of the Air Force Institute of Technology

in Partial Fulfillment of the Requirements for the

Degree of Master of Science in Computer Systems

Dr. Thomas C. Hartrum
Member

Capt Robert P. Graham
Member

Maj Mark A. Kanko
Chairman

Acknowledgments

This research could not have been accomplished without the help, patience, and understanding of many people. Being a novice in the software engineering field coupled with that fact that I'd been out of school for four years while working in a non-computer related job, I welcomed all the help I could get.

First, and foremost, I want to thank my wife for giving me words of encouragement and giving me the confidence I sometimes lacked. She never doubted my abilities even when I sometimes doubted them myself. Thanks for being a great wife as well as my best friend.

I'd like to also thank Maj (Dr.) Mark Kanko for guiding me in an unfamiliar area. Without him, I would have been lost. He was always there to answer questions, give direction, and supply encouragement. I'd especially like to thank him for his effort in finding a system suitable for this study. We ran into a lot of red tape, roadblocks, and dead-ends before he finally located a system I could use.

I'd also like to thank the other members of my thesis committee: Dr. Thomas Hartrum and Capt. (Dr.) Robert Graham. Their expertise in software engineering was invaluable. I would like to especially thank Dr. Hartrum for going out of his way to supply the software tool I needed for this research as well the funding I needed for travel.

I also owe a great debt of gratitude to two AFIT Ph.D. students (one has since graduated): Maj (Dr.) Rick Sward and Maj Thomas Schorsch. They both took time out of their busy schedules to help me with the *Refine*™ code I used to conduct my analysis.

I'd also like to thank my fellow GCS classmates and other "AFITeers" who participated in our once-a-week afternoon basketball rendezvous. The games proved to be a great channel to vent the stressors of AFIT life!

Table of Contents

List of Figures and Tables

Abstract

This thesis investigated several hypotheses that specific product measures could be used to predict later software lifecycle process or product measures. It collected software product and process measures from four consecutive major releases of a large COBOL legacy system (400K LOC). It used an automated tool to extract the product measures directly from the source code for each release. Several programs were written using this tool to calculate the product measures for each procedure. The types of product measures extracted were size and specific complexity measures (cyclomatic complexity, information flow, nesting level).

A statistical software package was used to calculate sample correlation coefficients between the product measures and the maintenance process measures provided by the owners of the COBOL software system. A 95% confidence interval was computed for each sample correlation coefficient that showed a strong or moderate linear correlation. The maintenance process measures provided were manhours used for each program changed or added, and defects detected during each change request. Sample correlation coefficients were derived to see if product measures such as size and cyclomatic complexity could reveal trends that could be used to estimate other software lifecycle measures such as effort and defects.

The hypotheses to this research could neither be accepted nor rejected because the process measures collected by the system's owners were recorded at a level too high for statistical analysis. The weaknesses are identified in the way these measures are collected, and suggestions are provided on how measures can be better identified and recorded.

1. Introduction

The focus of this research was to use specific source code product measures of a large

COBOL legacy system to predict other lifecycle activities. Size and complexity measures were

gathered from the source code to be used as product metrics. The product metrics used are

defined in Chapter 2 of this thesis. The research analyzed four consecutive versions or

"releases" of the COBOL system along with specific process measurements provided by the

owners of the system. The process measures provided were defect data and manhour data. Once

the product measures were gathered, the research investigated possible correlations between the

product measures and the process measurements for each version. This was done to see if the

product measures collected can be used as predictors for lifecycle process measures or activities.

This research also investigated possible correlations between different types of product measures

to see if product measures can be used to predict other lifecycle product measures.

This chapter will explain some background on why a COBOL system was chosen for the

study as well as how measurement can help software engineers control processes. It introduces

the problem statement, outlines the scope of the thesis, and presents some hypotheses. Finally, it

describes the document layout.

1.1 Background

This section provides some background on the COBOL programming language, software

maintenance, and the need for measurement in software engineering. It also introduces the

software system being analyzed and provides some background about the owning organization.

1.1.1 The COBOL Programming Language

The COBOL programming language continues to be the most widely used and maintained programming language in the Department of Defense and many commercial industries. A 1994 study conducted by International Data Corporation found that 60 percent of companies worldwide currently using COBOL plan to maintain, or actually increase, their reliance on COBOL in the future [Tri95]. The Air Force alone has organizations that maintain multi-million-line COBOL programs. Most of these systems are old and are considered "legacy" systems. There is no exact definition of when code is considered to be "legacy" code. In general, a system that has been in the field for several years and has gone through several revisions is considered to be legacy code.

"COBOL" stands for Common Business Oriented Language. COBOL was one of the earliest high-level languages and was designed for business-oriented problems. Unlike other languages, COBOL programs are organized into four different *divisions*. These are the *Identification Division*, the *Environment Division*, the *Data Division*, and the *Procedure Division*. The *Identification Division* is where the program name, author, date of creation, etc. are entered. The *Environment Division* describes the programs system environment such as hardware and operating system. The *Data Division* describes, declares, and initializes all the variables and files that will be used in the program. This is the only place variables can be declared, hence only global variables can exist in a COBOL program. The *Procedure Division* contains the executable statements of the program. It consists of a series of COBOL paragraphs, or procedures [Gra94]. This research will consider a COBOL procedure to be a module. The terms paragraph, procedure and module will be used interchangeably throughout this document. The COBOL *Procedure Division* is flexible because it can be written with a driver procedure that

2

controls the execution of each procedure, or the code can be written so each procedure is executed sequentially without a driver, sometimes termed "drop through". Because all variables are global in COBOL, procedures do not pass parameters between each other [Nic86].

Only a limited amount of product metrics work has been done with the COBOL programming language. Most of the software metrics community has overlooked COBOL and focused their sights on newer languages like Ada or C++. Perhaps this is because of the perception that COBOL is now predominantly a maintenance language and no longer a development language.

Unlike languages such as Ada and C++, COBOL is not designed for object oriented programming. Rumbaugh et al. state that a language is object oriented if it includes the following four aspects [Rum91]:

1. Identity - data is grouped into discrete, distinguishable entities called objects,

2. Classification - objects with the same attributes and operations are grouped together,

3. Polymorphism - the same operation may behave differently on different data, and

4. Inheritance - sharing of attributes and operations based on a hierarchical relationship.

Although COBOL supports identity and classification, it does not support polymorphism or inheritance. These disadvantages, coupled with the fact that all variables are global, make it difficult for a COBOL programmer to encapsulate data, hide information, and modularize procedures.

With the enormous amount of COBOL code maintained by the Air Force, it is difficult to ensure good-quality programs are being written and maintained using only manual methods.

Using metrics to gauge activities is a practice that can help software managers and developers produce quality software. This research will look at whether software product metrics could be useful to managers and developers of COBOL legacy systems by providing them an additional tool to control and estimate lifecycle activities. The ability to control and estimate lifecycle activities could help software managers plan a more accurate schedule and reduce development costs.

1.1.2 The Cost of Software Maintenance

Technological advances in the past two decades have shifted the costs of hardware and software in opposite directions. In the late 1970s, hardware accounted for 80% and software for 20% of the military's computing cost. With advancing technology, hardware has become easier to manufacture. Hence, the cost of hardware has dropped drastically and now consumes only 20% of computing costs. In contrast, advances in technology have boosted the demand for complex software in the military. Due to the increase in demand for software, organizations employing thousands of people have been established worldwide just to develop and maintain software. Thus, software now accounts for 80% of the military's computing cost [Con86].

With the continuing reduction of the Department of Defense budget, military organizations have been asked to reduce their annual spending drastically. In software organizations throughout the DoD, much of the spending is dedicated to maintenance of source code. Improving the maintenance process of Air Force software organizations could save the government millions of dollars annually. Applying metrics to software development processes could help identify problem areas that, once rectified, could save time and money on software projects.

4

1.1.3 The Need for Measurement in Software Engineering

Measurement is important for three basic activities. Fenton claims measurement can [Fen97]:

1. help us understand what is happening during development and maintenance,
2. allow us to control what is happening on our projects, and
3. encourage us to improve our processes and products.

Measurement in the software engineering realm has historically been neglected. Although measurement goes hand-in-hand with science and engineering, measurement has always been considered a luxury in the software engineering arena. For most development projects [Fen97]:

1. Managers fail to set measurable targets for their software products. For example, they promise that the product will be user-friendly, reliable, and maintainable without specifying clearly and objectively what these terms mean or how they will be measured. As a result, when the project is complete, they cannot tell if they have met their goals.

2. Managers fail to understand and quantify the component costs of software projects. For example, most projects cannot differentiate the cost of design from the cost of coding or testing. Since excessive cost is a frequent complaint from many of their customers, managers cannot hope to control costs if they are not measuring the relative components of cost.

3. Managers do not quantify or predict the quality of the products they produce. Thus, they cannot tell a potential user how reliable a product will be in terms of likelihood of failure in a given period of use, or how much work will be needed to port the product to a different machine environment.

4. Managers allow anecdotal evidence to convince them to try yet another revolutionary new development technology, without doing a carefully-controlled study to determine if the new technology is efficient and effective in their specific environment.

When measurements are made, they are not done as often as they should be, they are not taken consistently, and they are rarely complete [Fen97]. To ensure consistency and accuracy in collecting metrics, it is important that processes be established that instruct software developers

5

and maintainers on what to measure and how to measure it accurately. Successful metrics programs are highly dependent on collecting relevant, accurate data [Kan93].

1.1.4 Processes and the Capability Maturity Model (CMM)

In November 1986, the Software Engineering Institute (SEI) began developing a process maturity framework designed to help organizations improve their software process. The ultimate product was the CMM [Pau93]. The CMM gives guidance on how to control processes for developing and maintaining software. It also gives direction on how an organization can evolve to disciplined software engineering practices. This model assigns a *maturity level* from one to five to an organization, based on how well processes are defined and used. Figure 1-1 gives a graphical depiction of the CMM. The levels are designed so that the lower level capabilities act as foundations to build on to progress to the next higher level of the CMM [Hum92].
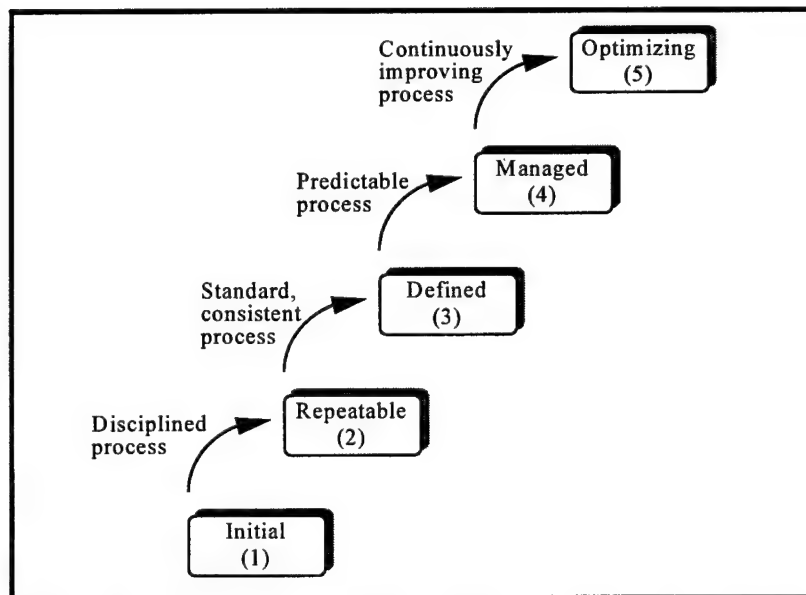
Figure 1-1. The Five Levels of Software Process Maturity

6

The need for defined processes is crucial with the continuing demand for software organizations to achieve a higher level of the CMM. Defined processes are needed for activities that are performed repetitively. Defined processes help people:

1. plan and track their work,
2. by guiding them through an activity, and
3. evaluate and improve the way an activity is done.

Humphrey [Hum89] states that organizations must perform the following six steps to improve their software development and maintenance capabilities:

1. understand the current processes,
2. develop goals for desired processes,
3. create a prioritized list of required process improvement actions,
4. make a plan to accomplish these actions,
5. commit the resources to execute the plan, then
6. start over at step 1.

One particular area where defined processes are needed before an organization can move to the highest level of the CMM is metrics collection and use. Organizations with successful measurement programs report the following benefits [Bau92]:

1. insight into product development,
2. ability to quantify tradeoff decisions,
3. better planning, control, and monitoring of projects,
4. better understanding of both the software development process and environment
5. ability to identify areas of potential process improvement as well as an objective measure of the improvement efforts, and
6. improved communication.

Measurement is important in software engineering because developers can measure characteristics of the software to determine if requirements are complete, if the design is of high quality, or to see if the system is ready to be tested. Project managers can use measurement to help them determine when software will be ready for delivery and whether the budget will be met or exceeded [Fen97].

1.1.5 The HOST Software System

The Air Mobility Command (AMC) / Computer Systems Squadron (CSS) is one of several organizations that maintain COBOL legacy code in the Air Force. This research analyzed a system maintained by AMC/CSS that has been in the field for over 20 years and used by every Department of Defense (DoD) organization worldwide that ships or receives air cargo. This system, called the Headquarters On-Line System for Transportation (HOST), is comprised of eight separate subsystems that provide authority to move, visibility, accountability, tracking and history data for AMC cargo shipments and commercial movement. The HOST system's functions include cargo processing, data updating, reports output, cargo movement, data inquiry, historical data retention, and system maintenance [Pin97].

AMC/CSS, in an effort to improve processes and attain a higher CMM level certification, collect and use process metrics on their software. Collecting and using process metrics is meant to help them continually improve their process of maintaining all of their software products.

1.1.6 Types of Software Metrics

Conte et al. [Con86] state that software metrics are often classified as either process metrics or product metrics. Process metrics, which AMC/CSS maintain, are used to measure either development or maintenance processes. Process metrics quantify attributes of the development or maintenance processes and environment. Process metrics include measures such as the experience of programmers, man-hours for coding, and cost of development and maintenance. Product metrics apply to software products such as a program's source code, system specifications, or program documentation. Product metrics, however, are measures of what is being produced by the process. Product metrics measure attributes like the size of the

8

program, the logic structure complexity, and the function of the product [Con86]. Arguments have also been voiced for a third class of metrics, resource metrics, that focus on any input to a process, for example programmers or hardware [Fen97]. AMC/CSS currently collects process metrics but has no activity that collects or uses product metrics.

Product metrics, like Halstead's Software Science [Hal77] and McCabe's Cyclomatic Complexity [McC76], have existed for over 20 years and are used widely in commercial industries in conjunction with process metrics. These metrics have been proven to provide more accurate assessments of software when used along with process metrics [She88]. For example, McCabe has shown that any module with high cyclomatic complexity correlates to a high number of faults experienced by the system [McC96].

This thesis research collected and analyzed software product measures on a specific COBOL legacy system. It attempted to correlate these product measures with specific process measures. This was done to see if these specific product measures could be used as predictors of specific process measures or activities. This research also attempted to correlate the product measures among themselves. This was done to see if product measures could be used to estimate other product measures.

AMC/CSS, as well as other software organizations, can use the results of this thesis to implement a metrics process of collecting and using product measures to estimate or predict lifecycle activities in the development or maintenance of their software.

1.2 Problem Statement

Currently, AMC/CSS neither collects nor uses product metrics to analyze COBOL legacy programs they maintain. They rely solely on process metrics to evaluate their software. This research investigated whether product measures derived from source code could be used as

9

estimations tools to predict other measures in the software's lifecycle. The ability to predict future activities gives managers and developers the capability to plan for these activities. This could save time and money as well as help software managers provide the customers with a more accurate estimation of the software project's completion.

1.3 Scope

This research collected software product measures from the HOST COBOL legacy system. It used these product measures to attempt to draw correlations with process measures currently being maintained for the system. This research investigated whether or not product metrics, used early in a software system's lifecycle, could be used to predict later software lifecycle activities. In addition, the results will be used to advise AMC/CSS on how they could use product metrics to enhance their software metrics program.

The product measures gathered were McCabe's Cyclomatic Complexity number [McC76], maximum nesting level, Henry and Kafura's information flow measure [Hen81], and size measures such as number of statements in a module and number of modules in a program. Descriptions of these metrics are provided in Chapter 2 of this document.

1.4 Hypotheses

One area this research investigated was the degree of linear correlation between the product measures collected and the process measures provided by the owner of the system. The degree of correlation was measured to see whether the product metrics derived from the source

code could be used as predictors to the process measures such as defects and manhours. This research hypothesized that:

1. the number of manhours needed to write or change code is affected by the complexity of the code,

2. the number of changes in the code (added, deleted, or changed) will correlate with the number of manhours needed, and

3. the number of defects found would correlate with modules having high complexity.

This research also investigated the degree of linear correlation among the product measure collected. McCabe [McC76] claims that size and cyclomatic complexity measures are independent of one another; however, Shepperd [She88] and Fenton [Fen97] claim the contrary. This research investigated the degree of linear correlation between these two measures as well as the other product measures collected. It also looked at how increases or decrease in one product measure from revision to revision may correlate with increases or decreases in other product measures.

1.5 Document Overview

The next chapter reviews the literature that provided background information on software measurement and source code product metrics. It specifically describes the product measures that were collected for this study as well as how the product measures have been used to improve processes. Chapter 3 describes the thesis methodology. Chapter 4 reports the data analysis and results. Finally, Chapter 5 provides conclusions, offers recommendations for process improvement, and gives suggestions for further study.

2. Literature Review

This chapter reviews the current literature and discusses how software measures are collected and used for both military and commercial practices. It presents some previous metrics work done on COBOL systems. It describes the usefulness of measurement in the software community. It gives a definition of software product metrics and describes the different types of software product metrics this research used. It shows that these metrics have been established and recognized as valid and useful metrics in the software community. This chapter also explains how these software product metrics are used to evaluate software and estimate future software projects.

2.1 Previous COBOL Metrics Research

Little work has been done with product metrics for the COBOL programming language. Gibson and Senn [Gib89] conducted experiments that used complexity metrics from COBOL code to investigate the relationship between system structure and maintainability. One of the objectives of their research was to see if cyclomatic complexity decreased whenever software "improvement" work was done on a system. Their findings revealed that cyclomatic complexity did decrease slightly when "improvement" work was done on a system.

Moe [Moe91] did some research collecting different types of complexity metrics from COBOL code using a lexical analyzer. The complexity measures she investigated included McCabe's Cyclomatic Complexity; however, she did not use Henry and Kafura's Information Flow measure in her research. She investigated whether different types of complexity metrics derived from source code gave relatively the same results. That is, if a specific segment of code

12

had high complexity for one type of measurement, would the same code have a high complexity for a different type of measurement. She discovered a correlation between the types of complexity measures for the particular system she analyzed.

Although some work has been done with product metrics and COBOL, this research found no work that attempted to investigate relationships between product measures and other lifecycle measures for COBOL systems. This is quite remarkable considering COBOL is still the most widely maintained programming language in the DoD and the world [Tri95].

2.2 Using Measurement for Estimation

Why should we be interested in software metrics? The main reason is to control what we're doing. Fenton cites DeMarco's rule: "You can neither predict nor control what you cannot measure" [Fen97]. If one is to talk about the quality of software one must have a means of measuring it. Quantitative measurement is necessary to assess a certain procedure or tool that is being used to improve a product or a process [Fen97]. Despite the simplicity of the idea of trying to impose order upon software engineering and engineers via measurement, progress in software metrics has been very limited [She92].

The ability to predict gives one the ability to plan. Poor planning by managers has been cited as the main reason development systems go over budget or over schedule. If managers have tools that enable them to accurately predict attributes of a software system, managers will be better equipped to plan the development of that software system.

Valid and accurate measurements help software engineers accurately plan and estimate their projects. An effective software measurement system adds value to every phase of the software lifecycle. Also, measures recorded during software development can be used for future projects [Jon91]. Jones continues by stating, "There is a perfect correlation between

measurement accuracy and estimation accuracy: Organizations that measure well can estimate well; organizations that do not measure cannot estimate either" [Jon91].

Fenton discusses four scenarios for using metrics to predict software system attributes [Fen97]:

Scenario 1: Using early product metrics such as size of specification to predict later product metrics such as size of final source code,

Scenario 2: Using process metrics such as average education level of programmers to predict product metrics such as the logic structure complexity,

Scenario 3: Using product metrics such as size of code to predict process metrics such as time needed to code, or

Scenario 4: Using early process metrics such as number of failures during module testing to predict later process metrics such as number of failures during integration testing.

This research focused on measures that fit best into Fenton's Scenario 1 and Scenario 3 descriptions. It investigated whether product measures, or in this case, COBOL source code measures could be used to predict defect and manhour data. It also investigated whether source code measures could be used to predict other source code measures.

2.2.1 Data Essential for Software Measurement

Jones [Jon91] describes three types of data that must be collected when dealing with software measurement:

1. hard data,
2. soft data, and
3. normalized data.

Hard data deals with objects or attributes that can be quantified with little or no subjectivity. This includes measures such as number of staff assigned to a project, time spent on a project, and the number of defects found and reported. Soft data is more subjective. Examples include

14

experience of staff, satisfaction of customers, and other environmental factors. Normalized data means that data should be observed relative to other projects. For instance, if a project written in Ada is compared against a project written in Assembly, measures such as lines of code (LOC) must be normalized because it takes approximately four LOC of Assembly to equal one LOC of Ada.

This research focuses on hard data. Although it is suggested that hard data can be measured very accurately, most organizations record their hard data inaccurately [Jon91]. One problem encountered with collecting data is lack of granularity. Jones [Jon91] states that organizations tend to accumulate only cumulative or composite data instead of separating the data into meaningful subsets, such as the effort for requirements, design, and coding. Such high-level data is of little value as there is no true way to validate it. Although the defense industry takes estimation seriously, most defense organizations have spotty and incomplete quality measurements [Jon91]. The hard data measures provided by AMC/CSS and used in this research were defect data and manhour data.

2.2.2 Defect Data

Jones [Jon91] states that since the cost of finding and fixing bugs has historically been the largest factor in software cost, one of the most important hard-data measurements is defect count. A defect can be a requirements error, design defect, coding defect, documentation defect, or a bad fix. A good defect count measurement system can improve an organization's defect removal efficiency. The overall U.S. average of defect removal efficiency by organizations is only about 75% [Jon91]. Measuring defect removal efficiency is a sign that an organization is on the leading edge. Organizations with a high defect removal efficiency (95% or higher) tend

to be optimal in three other aspects when compared to other organizations that have projects of the same size and type [Jon91]:

1. they have the shortest schedules,

2. they have the lowest quantity of effort level in terms of person-months and person-hours, and

3. they have the highest levels of user satisfaction after release.

The average organization routinely delivers a software system with up to 25% of the total defects still undiscovered, while leading-edge organizations can reduce this rate to 5% [Jon91].

2.2.3 Manhour Data

Manhour effort is sometimes difficult to quantify. All too often software managers over-estimate their team's ability to produce code. Instead of using empirical data to estimate production, they rely on educated guesses. Some of the reasons these estimates can be so far off is that managers fail to account for time loss due to machine downtime, meetings, paperwork, personal time, and sickness, etc. [Bro95]. One must attempt to take these factors, and others, into account if manhour effort is to be recorded accurately.

Collecting manhour data during project development is intuitively useful for predicting other development projects of the same type. However, using manhours as a predictor of the amount of code that can be written can be misleading. Manhour data collected while developing relatively simple code, with little complexity, could reveal relatively high productivity. However, manhour data collected while developing highly complex code, could suggest low productivity. For these reasons, the complexity of the code must be factored in when estimating the manhours needed to write the code.

16

2.3 Software Product Metrics

The concept of software product metrics is not new. Over 20 years ago Halstead originally proposed a family of software measures known as Software Science [Hal77]. Halstead tried to capture aspects of a program that were similar to physical and psychological measurements in other disciplines. He claimed his software science metric could be used to predict the length of a program and effort level needed just by observing certain attributes of the program's code [Hal77]. Although Halstead's metric has been questioned repeatedly by software engineers and statisticians, his effort established the new discipline of software science known as software product metrics. The software community now has a variety of software product measures that can be used to analyze source code.

Two particular types of product measures that dominate the interests of software engineers are program size and various types of program complexity measures. This research effort focused on these two types of product metrics. The following introduces and defines the software product measures used in this research.

2.3.1 Program Size Measure

There are many ways to measure the size of a program. One can count source lines of code (LOC), the number of modules, function points, or the number of statements, etc. The LOC measure is the most popular means to measure the size of a program possibly because it is the simplest product measure to collect. The basis for LOC as a valuable measure is that program length can be used as a predictor of program characteristics such as reliability and ease of maintenance [She88]. Since the software community agrees that, to a large extent, the amount of effort necessary to construct a program depends upon the number of lines that are written, the size measure naturally becomes a dominating factor in effort-related studies. The size of a

program is claimed to be an important measure for primarily these reasons: it is easy to compute after the program is completed, it is the most important factor for many models of software development, and productivity is normally based on a size measure [Con86]. It has been suggested that the LOC measure be regarded as a baseline metric to which all other metrics be compared [She88].

The software community has used several different methods to count the LOC measure of a program. Some organizations include comment lines or blank lines when counting the overall LOC measure. However; Conte et al. [Con86] state a line of code is any line of program text that is not a comment or blank line, regardless of the number of statements or fragments of statements on the line. This specifically includes all lines containing program headers, declarations, and executable and non-executable statements. It does not include blank lines or comment lines [Con86]. The important factor to remember when using any size measure is that the method of counting must be consistent when comparing programs against one another, especially within a single organization.

2.3.2 *Program Complexity and Associated Metrics*

The complexity of a program is of major importance when dealing with product metrics. Wallace et al. [Wal96] state that highly complex software is prone to have more errors than software that is not as complex. Complexity beyond a certain limit hampers a person's ability to understand and interpret information. The same psychological factors that limit a person's ability to do mental manipulations of more than "7 +/- 2" objects also apply to software [Wal96]. Therefore, the more complex a piece of software is when it's time to modify it, the more likely the programmer will have difficulty understanding it. This increases the chances of the programmer making an error in the modification.

18

Conte et al. [Con86] state that when dealing only with software, complexity is a characteristic of the software interface which influences the resources another system will expend or commit while interacting with the software. However, from the human point of view, complexity deals with aspects of the software that effect the programmer performance in designing, developing, understanding, testing, and maintaining the software. This definition implies that complexity can be attributed to the software itself, its interactions with other systems, or how difficult the code is to read [Con86]. Fenton states that there are four different ways to interpret complexity:

1. problem or computational complexity: Deals with how complex the problem is we're trying to solve,

2. algorithmic complexity: Deals with the complexity of the algorithm used to solve the problem,

3. structural complexity: Deals with the complexity of the structure used to implement the above algorithm, and

4. cognitive complexity: Deals with the effort needed to understand the software [Fen97].

These types of complexities can interact with each other by cause and effect. Reducing or increasing one type of complexity may cause other types of complexity to reduce or increase. A program's modules or procedures can be described as having high or low levels of any combination of the above types of complexity.

Brooks [Bro95] believes that complexity causes difficulty in communication among team members, which in turn leads to product flaws, cost overruns, and schedule delays. Complexity makes programs hard to use, makes programs difficult to extend without causing side effects, and makes programs vulnerable to security trapdoors. Complexity also makes programs harder to understand, therefore making them less reliable [Bro95].

A primary goal of quantifying program complexity is to determine if highly-complex modules could possibly be redesigned to make the module more testable and maintainable therefore increasing its reliability [Moe91]. The ability to measure implies:

1. we can identify high-complexity modules during the design or coding phase (but before integration) and redesign them, and

2. we can identify modules in existing software systems that are potential problems, since complexity has been found to be directly related to error density.

There have been several product metrics developed to quantify a program's complexity. This research involved three such metrics: McCabe's Cyclomatic Complexity, Nesting Level, and Henry and Kafura's Information Flow Measure.

2.3.2.1 McCabe's Cyclomatic Complexity

McCabe's Cyclomatic Complexity was first introduced in 1976 [McC76]. This measurement focuses on the control structure of a computer program by determining all the possible independent paths from start to finish that can be taken during execution. This metric has remained popular for several years primarily because it is simple to compute.

One may see a problem with this measurement when faced with a backward branch. Backward branches can lead to an infinite number of paths through a program, resulting in an infinite complexity measure. Note, however, that this metric is designed to compute the program's independent paths and not all possible paths, hence, it always produces a finite measure.

McCabe's measure is also known as the cyclomatic number, V(G), which is computed by depicting a program as a strongly connected graph G with n vertices or nodes, e edges, and p connected components. For example, Figure 2-1 is a program control graph with entry node a

20

and exit node *f.* It depicts a program segment that has decision points at *a* and *c*. That means, upon reaching these nodes in the execution of the segment, there are two possible paths the program can take.

The set of linear independent paths of the flow diagram depicted in Figure 2-1 are illustrated in Figure 2-2. A linear independent path is a unique possible path a program can take during execution. For instance, the path *abf* in Figure 2-2 shows one possible path the program segment can take during execution. Paths *acdf* and *acef* represent the only other possible unique paths the program segment can take.
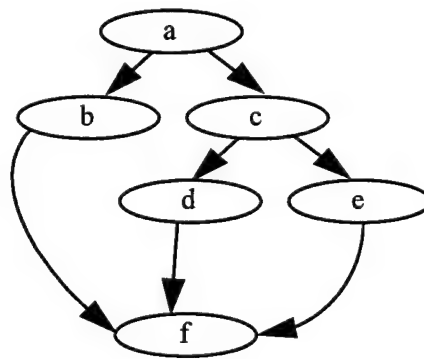
Figure 2-1. A flow graph

{abf, acdf, acef}
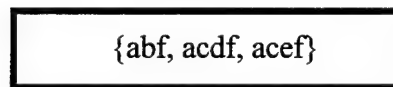
Figure 2-2. Set of linear independent paths

Equation 2-1 computes the cyclomatic number of a program module G which is equal to the maximum number of linearly independent paths:

$$V(G) = e - n + 2p \qquad (2\text{-}1)$$

Computing the cyclomatic complexity for the flow graph depicted in Figure 2-1, n is 6, e is 7, and p is 1(only one component). Using equation 2-1 gives:

$$V(G) = 7 - 6 + 2 = 3$$

McCabe discovered that there is a direct relationship between the associated cyclomatic complexity number of a directed graph and the number of predicates within a program. That is, the cyclomatic number is one more than the number of binary predicates in the statement. A binary predicate is when only two possible conditions can occur at a decision point. For example in Figure 2-3 there are three binary predicate statements (If-Statements) each of which have only two possible conditions. The possible conditions for the first If-Statement are $A > B$ or A not $> B$. Thus, the cyclomatic complexity number of the segment of code in Figure 2-3 is 3. This relationship makes it much easier to compute the cyclomatic complexity number, alleviating the need to construct a directed graph. The cyclomatic number can therefore be conveniently calculated directly from a program's source code [Moe91].

McCabe also noted that compound predicates add to the cyclomatic complexity of a statement. For example in Figure 2-4, the If-Statement predicate is compound because it is checking two separate binary predicates. Because of this, each conjunction in a predicate adds one to the cyclomatic complexity number of a statement. Therefore, the cyclomatic complexity number for figure 2-4 is also 3.

```
IF  A  >  B  THEN
   IF  B  >  C  THEN
       MOVE  3  TO  B
     ELSE
       MOVE  7  TO  B
 ELSE
     MOVE  5  TO  B
 END  IF.
```

Figure 2-3. Multiple If-Statement

```
IF  A  >  B  AND  B  >  C
   MOVE  10  TO  A
ELSE
   MOVE  5  TO  A.
```

Figure 2-4. A Compound If-Statement

To compute the cyclomatic number for an entire program X that consists of several modules, the cyclomatic number, $V(X)$, is equal to the sum of the individual complexities of each module. This is due to each module representing a single connected component with one entry and one exit point. For example, let there exist a program X with p connected components, or modules. Let $p(i)$ denote the p unique connected components, where i ranges from 1 to p. Let e_i denote the number of edges in the ith connected component, and n_i denotes the number of nodes in the ith connected component.

Then:

$$V(X) = e - n + 2p$$

$$= (\sum_{i=1}^{p} e_i - \sum_{i=1}^{p} n_i) + 2p$$

$$= \sum_{i=1}^{p} (e_i - n_i + 2) \qquad (2\text{-}2)$$

The last sum represents the total cyclomatic number for the program where p is equal to the number of connected components [McC76].

McCabe also points out that the overall cyclomatic number of a program can be easily computed by just counting the number of total binary predicates in the program, including any additions for compound predicates, and adding one for each connected component (module) in the program to the total number [McC76]. For example, Figure 2-5 illustrates a small COBOL procedure division that contains two modules. In this program segment there are 3 binary predicates and 2 connected components (modules) giving a cyclomatic number of 5.

```
PROCEDURE DIVISION.
PROCEDURE-1.
    IF A > B THEN
        ADD 10 TO B
    ELSE
        SUBTRACT 10 FROM B.
PROCEDURE-2.
    IF C EQUALS D THEN
        IF D > 20 THEN
            MOVE 20 TO C
        ELSE
            MOVE 30 TO C
    ELSE
        MOVE ZERO TO D.
```

Figure 2-5. A COBOL Program's Procedure Division

The results of McCabe's metric can be used in an operational environment: project members can be advised to limit their software modules by cyclomatic complexity in addition to physical size. Numerous studies [Wal79], [Hen81b], [War89], [Sch79], [Gib89], and [Hei94]

have shown that high measures of McCabe's cyclomatic complexity number correlate with high

levels of errors in software. For example, Walsh [Wal79] looked at 276 procedures to see how

cyclomatic complexity effected errors in the code. He found that modules with a cyclomatic

number of 10 or higher experienced 21 percent more errors than those modules with a

cyclomatic number less than 10. Approximately half of the procedures he analyzed had a

cyclomatic number of 10 or greater.

These studies have shown that the more complex a module is, the more likely it will

contain errors. Beyond a certain threshold of cyclomatic complexity, the chances are much

greater that a module will contain errors. The particular threshold, or upper bound, of

cyclomatic complexity that McCabe established is 10. McCabe's intention was to keep the

complexity of the modules manageable and allow for testing all the independent paths. Limiting

the cyclomatic complexity of software modules would increase the overall reliability of the

software [Wal96]. This limit is waived in situations with single multiway decision (case)

statements [Mcc76].

In studying testing and cyclomatic complexity, Wallace et al. cited that there are several

good reasons to limit cyclomatic complexity. Modules that are highly complex are more likely

to have errors, are more difficult to understand, are harder to test, and require more work to

modify. Studies have shown that modules with high cyclomatic complexity correlated strongly

with difficulty in understanding and modifying software [Cur79]. Purposely setting limits of

cyclomatic complexity at every stage of the software development process helps avoid the

difficulties associated with highly complex software. Several organizations have implemented

cyclomatic complexity limits to their software. The exact number to use as a limit, however,

remains debatable. As stated earlier, McCabe originally proposed a module limit of 10, but limits as high as 15 have been successfully used as well [Wal96].

2.3.2.2 Nesting Level

Nesting enables programmers to avoid writing an "if" or loop statement with an inordinate amount of compound conditionals. This is possible because nested statements use the conditions of previous "if" or loop statements in the nested structure. Although this allows individual "if" or loop statements to be more manageable, an excessive amount of nesting can make it difficult for programmers to determine what conditions must be met before a statement is executed [Con86]. Nested statements may not be easy to simplify in complex programs that require satisfaction of many conditions before execution of an operation. However, if possible, one should try to reduce the level of nesting by using simple Boolean expressions [Ada92]. Also, case statements should be used instead of nested If-Statements when possible.

To determine the nesting level of any given module, each statement in a structure must be assigned a nesting level. This can be calculated by recursively carrying out the following procedure on a structure [Con86]:

1) The first executable statement has nesting level 1.

2) If statement a is at level i and statement b simply follows sequentially after statement a, the nesting level of statement b is also equal to i.

3) If a statement is a loop or conditional statement at level i, the next statement will be at level $i + 1$.

Figure 2-9 is an example of a COBOL structure with extensive nesting. The nesting level of each statement is listed to its right.

```
                                             Level
        IF WS-COUNT > 10                        1
            IF WS-FLAG = "TRUE"                 2
                IF WS-PROFIT < 500              3
                    PERFORM 100-CLOSE-SHOP      4
                ELSE                            3
                    IF WS-PROFIT > 5000         4
                        PERFORM 200-INVEST      5
                    ELSE                        4
                        PERFORM 300-KEEP-GOING. 5
```

Figure 2-6. An Extensively Nested COBOL Structure

Although McCabe makes no distinction between the cyclomatic complexity of a nested If-Statement and a case statement, he implies that a case structure is much easier to understand than a nested If-Statement [McC76]. Shepperd [Shep88] also cites that because of this, a case statement shouldn't be considered as complex as a nested If-Statement when it comes to cyclomatic complexity. It has been suggested that a case statement contribute only one to a module's cyclomatic complexity, or perhaps a $\log_2(n)$ relationship, where n is the number of cases.

2.3.2.3 Information Flow Complexity Measure

The Information Flow Complexity Measure introduced by Henry and Kafura measures the interprocedural complexity of a program [Hen81], which considers the complexities of procedures and modules within a system as well as the complexities of the interfaces between different components of the system. This measure looks to identify poor functional decomposition of procedures and modules, improper modularization, poorly designed data structures, and modifiability [Hen79]. The formula that computes the information flow measure of a module is illustrated in Equation 2-4.

27

$$Cp = length * (fan\text{-}in * fan\text{-}out)^2 \qquad (2\text{-}3)$$

where:

    length =   module length.

    fan-in =   number of local flows into a module plus the number of
                      data structures from which a module retrieves information.

    fan-out =   number of local flows from a module plus the number of
                      data structures which the module updates.

The length of the module can be represented by LOC, number of statements, or function

points, etc. It is not important how length is represented as long as it is always represented the

same way when analyzing and comparing modules.

A local flow of information takes place from a module *A* to a module *B* if one or more of

the following conditions take place:

1. If module *A* calls module *B*.

2. If module *B* calls module *A* and module *A* returns a value to module *B*,
   which module *B* uses.

3. If module *C* calls both modules *A* and *B* passing an output valued from
   module *A* to module *B*.

Figure 2-7 is an example of a COBOL procedure that calls two other procedures:

100-CHECK-IT and 200-UPDATE-FILE. Assume the procedure shown in Figure 2-7 is called

by two different procedures: 025-GET-COUNT and 050-ADD-IT. 000-COUNT-IT retrieves

information from one data structure: WS-COUNT-INC, and it updates two unique data

structures: WS-COUNT-INC and WS-FLAG-CHECK. Figure 2-8 illustrates the calls to and

from the procedure with a structure chart. Because COBOL uses global data structures and does

not pass variables when calling other procedures, only condition 1 of the above definition applies

when calculating local flow.

```
000-COUNT-IT
    ADD 1 TO WS-COUNT-INC.
    IF WS-COUNT-INC > 5
        PERFORM 100-CHECK-IT
        MOVE "TRUE" TO WS-FLAG-CHECK
    ELSE
        PERFORM 200-UPDATE-FILE.
        MOVE "FALSE" TO WS-FLAG-CHECK.
```

Figure 2-7. An Example COBOL Procedure
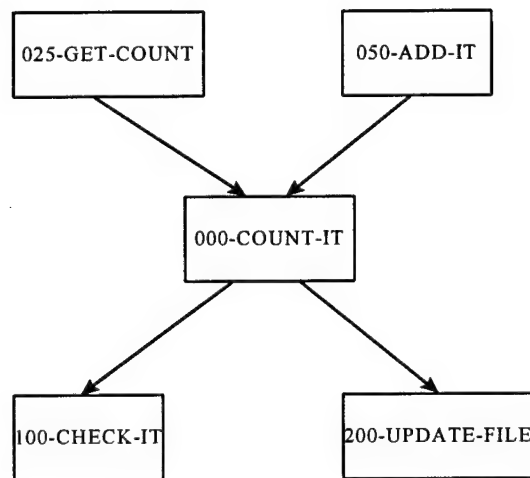
Figure 2-8. Structure Chart for Figure 2-7

The following illustrates how the Information Flow Complexity Measure is calculated

for Figure 2-7:

length = 6	6 statements
fan-in = 3	2 calls into the procedure
	1 data structure it retrieves information from
fan-out = 4	2 calls from the procedure
	2 data structures are updated

Using equation 2-4:

$$Cp = 6 * (3 * 4)^2$$
$$Cp = 864$$

Henry and Kafura [Hen79] used the Information Flow Complexity Measure to determine

if a correlation existed between the information flow measure and process measures.

Specifically, they looked at the number of changes made on the system. Initial work found a

strong correlation between modules with a high Information Flow Complexity Measure number

and the number of changes made to each of those particular modules or procedures. The study

further revealed a correlation between defects and their Information Flow measure [Hen79].

2.3.3 Product Measures Estimating Defects

A study by Henry et al. [Hen79] and many studies using McCabe's Cyclomatic

Complexity measure [Wal79], [Hen81b], [War89], [Sch79], and [Hei94] have found that the

particular complexity product metrics studied correlated with defects found in the code. One of

the hypotheses of this research is that a positive correlation would be found between defect data

and program complexity. If it can be determined early in the development lifecycle which

modules may end up being highly complex, these modules can be redesigned to try to reduce the

complexity. Also, if it's not feasible to change the modules and we have empirical evidence that

suggests a correlation between highly complex modules and defects, we can use this information

to predict extra maintenance efforts or schedule slippage that may occur due to the anticipated defects.

2.4 Conclusions

Although product metrics have existed for over twenty years, evidence of their use by software organizations in the DoD is very scarce. The COBOL programming language is an old language and most of the systems developed with COBOL are also old. As stated earlier, very little work has been done with metrics on COBOL. This means very little empirical data is available that could help COBOL system managers use metrics to improve processes. The Air Force maintains millions of lines of COBOL code on hundreds of vital computer systems. These systems require recurring maintenance throughout their lifecycle. Over time, modules or procedures in the system can become more and more complex. Once this happens, a system can get caught in a vicious circle where programmers fix a problem, but increase the complexity. The increased complexity introduces yet more problems, and these problems must be fixed. This can continue until a new design is developed and released.

Using software product metrics to predict, and therefore reduce, future life-cycle problems would be a valuable asset to everyone that is affected by software. Moreover, by detecting problems at the root, managers and developers can produce higher quality software that will be more reliable throughout its lifecycle.

2.5 Summary

This chapter provided detailed background information on several software product measures derived from source code. The following chapter describes the methodology used to

collect and use the product measures as well as how the data was analyzed once all the measures were collected.

3. Methodology

This chapter discusses the methodology used to collect and analyze the COBOL source code product measures and process measures. One goal of this research was to analyze a large COBOL legacy system that had at least 200K lines of code. Another requirement was that complete, previous versions of the source code had to be available so comparisons could be made between each release.

Source code measures were gathered from each of four consecutive major releases of the code. This was done so three major revisions could be observed. The source code measures gathered from a particular release were compared to the previous release's source code measures to observe any changes.

In the research, four consecutive major releases of the source code were analyzed from a COBOL system that contained over 400K LOC. This system, the Headquarters On-line System for Transportation (HOST), is currently maintained by the Air Mobility Command (AMC) / Computer Systems Squadron (CSS) at Scott AFB, Illinois. The system is made up of eight major subsystems. Five of these subsystems were analyzed. Each of these subsystems is made up of several COBOL programs. The five subsystems contained a total of 183 programs, which in turn consisted of over 5,500 modules.

The first step in this research was to decide which source code measures would be collected, then extract these measures from the source code using an automated tool, and finally deriving sample correlation coefficients and computing 95% confidence intervals for the correlation coefficients that showed a moderate or strong linear correlation.

3.1 Source Code Measures Selected

Size and complexity measures were selected as the measures to be gathered. The size measure was chosen because it has proven to be a dominating factor for estimating software development effort [Fen97]. Several studies [Hen79], [Wal79], [Hen81b], [War89], [Sch79], and [Hei94] have found correlations between complexity measures and defects. This research investigated whether the size and complexity measures could be used to return similar results for the COBOL system being analyzed.

The raw product measures gathered and computed can be found in Appendices D and E. The following specific size measurements were gathered:

1. number of statements per module,
2. number of statements per program,
3. average number of statements per module,
4. number of modules per program, and
5. largest module per program.

The types of complexity measures gathered were McCabe's Cyclomatic Number, maximum nesting level, and Henry and Kafura's Information Flow. The following specific complexity measurements were gathered:

1. cyclomatic number, information flow, and maximum nesting level per module;
2. cyclomatic number, information flow, and maximum nesting level per program;
3. average cyclomatic number, information flow, and maximum nesting level per module; and
4. module with highest cyclomatic number, information flow, and maximum nesting level in program.

3.2 COBOL "EXIT" Procedures

COBOL developers are routinely directed to use exit paragraphs or procedures at the end of each module so that the end of the module is clearly marked in the program. Exit procedures perform no processing and are used just to provide a clean termination of a procedure. An exit

34

procedure can only contain the exit statement; no other statements are allowed in an exit procedure.

The HOST software system contained exit procedures to terminate virtually every regular procedure. Because exit procedures contain only an exit statement and do no processing, these procedures were excluded from the measures collection and analysis. This reduced the amount of modules to be analyzed to approximately half.

3.3 Application Used to Derive Measures

To automate the process of gathering product measures from a program's source code an application is needed that should have the following three capabilities:

1. A lexical analyzer created specifically for the program language being analyzed: The lexical analyzer parses the program's source code looking for predefined keywords or parts of grammar. Each time the lexical analyzer finds a keyword or grammar it creates a representation or "token" for that keyword or grammar.

2. The ability to create an Abstract Syntax Tree (AST): Once the tokens have been created, relationships between the tokens must be established. This is done by creating an AST. Figure 3-1 is a pseudo-code representation of an IF-THEN-ELSE statement. A primitive representation of an AST for the statement is illustrated in Figure 3-2.

```
If a > b then
  If b > c then
    a := 10;
  else
    a := 20
else
  a := 15
end if;
```

Figure 3-1. An If-Statement
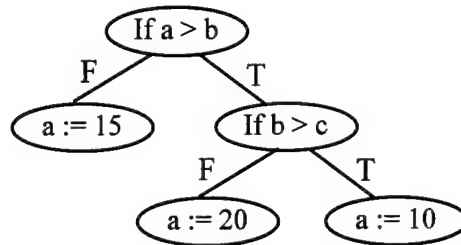
Figure 3-2. An If-Statement AST

3. A measurement tool: After the ASTs have been created, each tree must be analyzed to count the particular attributes of interest. A knowledge-based system must be used that understands the syntax of the specific language being analyzed as well as how the AST is being represented. This system must take into account all the programming structure rules associated with the language in order to gather the measurements correctly.

The automated tool used for this research was *Refine/COBOL*™. It provided the first

two capabilities described above. To accomplish the third step, additional *Refine/COBOL*™

code had to be written.

Refine/COBOL™ is an interactive workbench that supports key tasks in working with

COBOL source code [Rea95]. It was used to extract the product measures automatically from

the COBOL source code. *Refine/COBOL*™ uses the *Refine*™ programming language. This

programming language supports set theory, logic, transformation rules, pattern matching, among

others [Rea90]. *Refine/COBOL*™ uses these features to analyze the logic, data components and

relationships in a COBOL program and creates an Abstract Syntax Tree (AST). Once the AST is

built for a program, *Refine/COBOL*™ code can be written to extract specific data from the AST.

Figure 3-3 is an example COBOL If-Statement. Figure 3-4 is an AST subtree that

represents the specific COBOL If-Statement in Figure 3-3. *Refine/COBOL*™ breaks the

statement down, in this case the If-Statement, into its smallest parts while maintaining the

relationships between each part of the statement.

```
IF CUSTOMER-STATUS OF ORDER-OUT > 1 THEN
      SUBTRACT 1 FROM CUSTOMER-STATUS OF ORDER-OUT.
```

Figure 3-3. A COBOL If-Statement
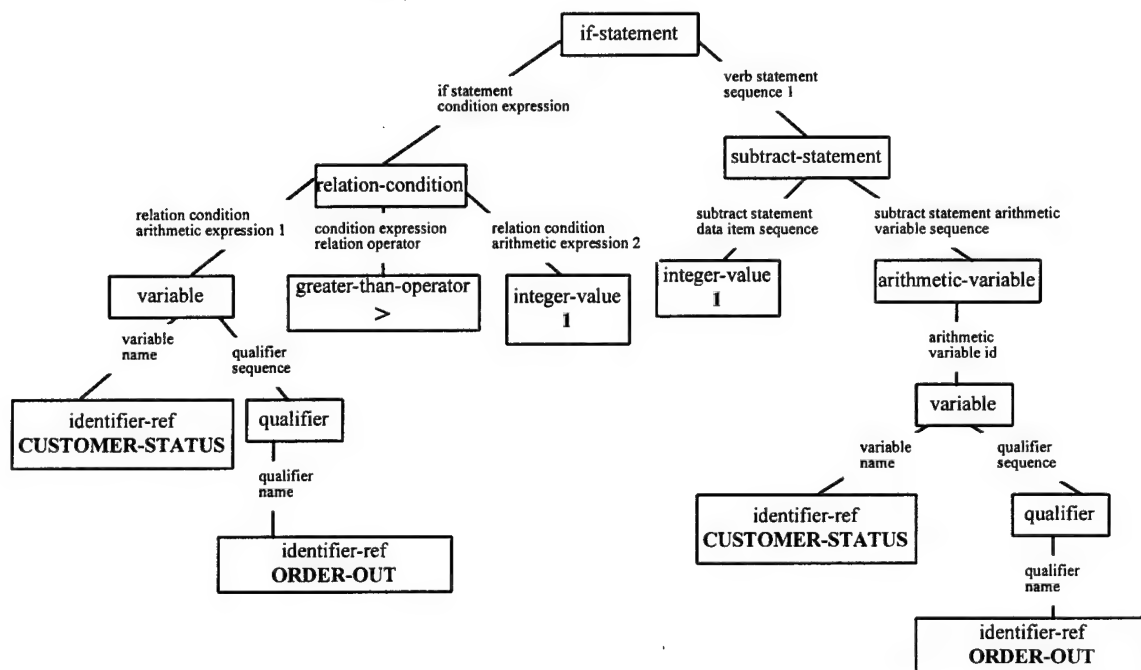
Figure 3-4. An AST of an If-Statement

Not all statements of the same type have identical subtrees; the AST that is built

represents the specific code being analyzed. For example, two If-Statements may have

completely different ASTs depending on the complexity of each statement. The AST in

Figure 3-6 represents the slightly more complex If-Else-Statement shown in Figure 3-5.

Compared with Figure 3-4, many more parameters are involved.

37

```
IF GREEN-WIDGETS OF ORDER-IN = ZERO OR
    RED-WIDGETS OF ORDER-IN = ZERO THEN
        MULTIPLY .93 BY WIDGET-PRICE OF ORDER-OUT
ELSE
        MOVE ZERO TO RED-WIDGETS OF ORDER-IN.
```

Figure 3-5. A More Complex COBOL If-Statement
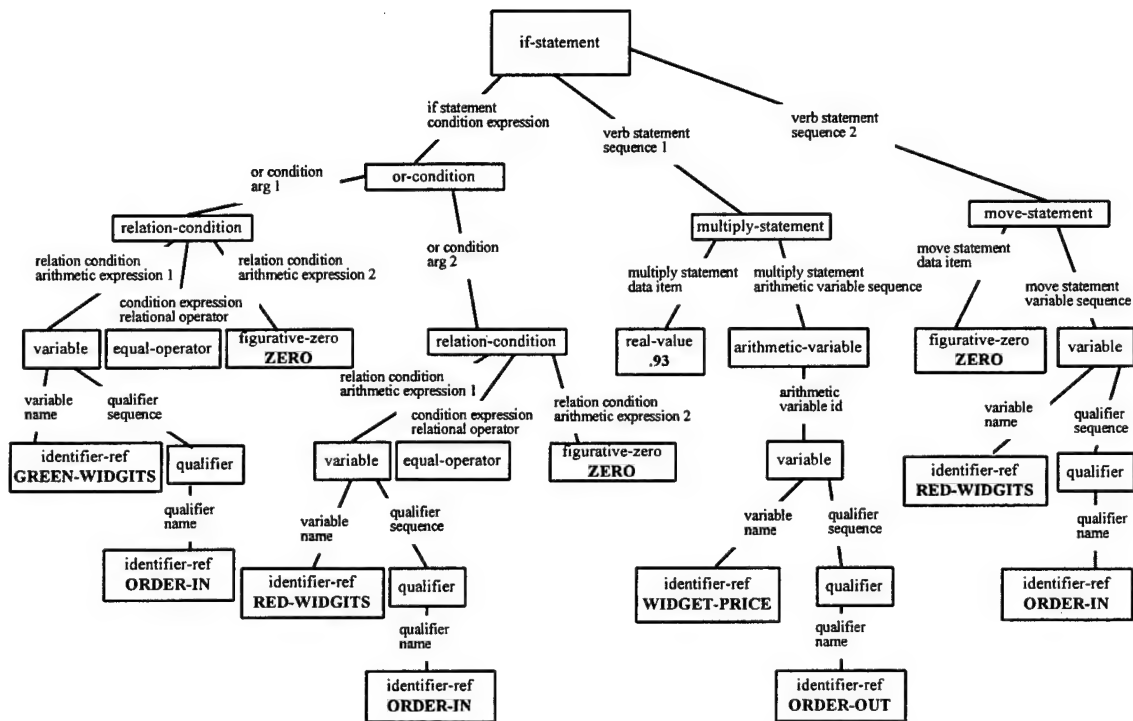
Figure 3-6. An AST of a More Complex If-Else-Statement

Because of these differences, the *Refine/COBOL*™ code that was developed to gather

measures from the ASTs was written to handle the different configurations a COBOL

statement's AST can entail. All of these possible configurations are defined in the

38

Refine/COBOL™ User's Guide [Rea95]. The *Refine/COBOL™* code that was written to compute and gather source code measures can be found in Appendix A.

3.3.1 Computing Size Measures

As stated in Chapter 2, there are a variety of ways to measure the size of a module. The most popular means of measuring size is lines of code (LOC). Because the automated tool being used did not have the capability of extracting LOC from the source code, the number of statements per module was used instead. This also seemed to be a better measure for observing any changes in the code because statements can sometimes take up several lines of code. For example, if a statement was added, deleted, or changed it would not show bias to larger statements that may take up several LOC or a smaller statement that may take up only one LOC.

3.3.2 Computing McCabe's Cyclomatic Number

McCabe's Cyclomatic Number was derived by writing code that analyzed each conditional or loop statement in a module and deriving the overall cyclomatic number for the module by using the formula described in Chapter 2 of this document.

3.3.3 Computing Henry and Kafura's Information Flow Measure

The Information Flow Measure was derived by writing code that analyzed every statement in the module to determine whether or not variables were being used or updated in the statement. COBOL uses only global variables in a program and does not pass variables back and forth between procedures. Because of this, the scope of determining the local flow of information from or to a procedure was narrowed to using only the first condition of what constitutes a local flow described in Chapter 2.

3.3.4 Computing Maximum Nesting Level

The maximum nesting level of a module was determined by writing code that analyzed each conditional and looping statement in the module and determining which of these statements had the highest nestling level as defined in Chapter 2.

3.4 Gathering the Process Measures and Source Code Measures

AMC/CSS provided four complete, consecutive versions of the five subsystems for analysis. The earliest version of the code received was established as the baseline version. The three subsequent versions were considered major releases. All measures were gathered and organized separately by release.

3.4.1 Gathering Process Measures by Release

All changes that are made during each major release are dictated by either a Baseline Change Request (BCR) or a System Problem Report (SPR). BCRs are initiated when users need to add to, or change, the functionality of the system, or when users find problems with the system. SPRs are initiated internally in the development organization when a problem is found in the system. For the HOST system, BCRs and SPRs are organized by subsystems. In other words, a BCR or SPR will be associated with only one subsystem. If a change is needed that will modify more than one subsystem, a separate BCR or SPR will be drawn up for each subsystem.

All the BCRs and SPRs associated with the three major releases and which were analyzed in this research were provided by AMC/CSS. In addition, an Impact Analysis Worksheet (IAW) accompanied each BCR and SPR. An IAW estimates how many programs will need to be added, if any, and which programs will need to be changed. It also gives estimates on the number of LOCs that will be added, changed, or deleted, and the estimated

number of manhours that will be required to make the additions or changes. AMC/CSS takes this a step further after the additions or changes have been made by providing the actual programs added or changed including the LOCs added, changed, or deleted as well as the total number of manhours it took to accomplish the task for each program.

3.4.2 Gathering Source Code Measures by Release

All code from the baseline version was analyzed and source code measures were gathered and entered into a spreadsheet. The IAWs provided a detailed list of all the programs that were changed or added in each major release. Therefore, it was only necessary to collect and analyze the source code measures from the programs that actually were changed in each major release. Once all the source code measures for each of the major release were gathered, they were entered in a spreadsheet along with the baseline's source code measures. Differences in the product measures could then be easily observed between the releases.

3.4.2.1 Additional Source Code Measures

Although the IAWs provided the number of LOCs that were changed, added, or deleted in a program, the data could not be used for the purpose of this research. This is because this research was interested only in the *Procedure Division* of the COBOL programs. LOC modifications listed in the IAW include all divisions of the COBOL program. Hence, each program that was changed was examined with a text editor to see which actual changes were made only in the *Procedure Division* of each program. Once these were gathered, they were also entered into a spreadsheet along with the source code measures.

41

3.5 Comparing Measures Gathered

The *Statistix®* software package was used to compute the correlations between sets of data. Scatter plot were constructed and sample correlation coefficients were computed for the compared measures. This was done to see if any positive correlations existed between process measures such as defects or manhours with product measures derived from the source code such as size or complexity. A high positive correlation between measures means that a high number in a one measure will result in a relatively high number in the other measure and vice versa.

When trying to draw relationships between data, constructing a scatter plot should be the first step. Visually inspecting the data with a scatter plot can often reveal features that could be overlooked if only tabular data was examined [Dev95], [Ana96]. The scatter plot should give insight on whether there is a correlation between the data and whether the correlation is positive or negative.

After constructing scatter plots for all the correlations, the *Pearson* Correlation was used to compute the sample correlation coefficient between the sets of data. The *Pearson* correlation returns a sample correlation coefficient r which measures the degree of linear relationship between the set of data [Ana96]. Devore [Dev95] states that the strength of the correlation between a set of data is said to be

- strong   if $.8 \leq |r| \leq 1$,
- moderate   if $.5 < |r| < .8$, and
- weak   if $0 \leq |r| \leq .5$.

3.6 Computing Confidence Intervals

Confidence intervals were computed for compared measures that had a moderate or strong sample correlation coefficient. Normally, confidence intervals can only be computed on data that have a normal population distribution and for which the standard deviation is know for

the population. However, these requirements can be waived by using the Central Limit Theorem when a large sample of data is being measured. Generally, a sample of data is considered large if the population is > 30 [Dev95].

For the purpose of this research, the sample correlation coefficient, r, and the sample data size is used to determine the 95% population confidence interval for each compared measure that had a moderate or strong sample correlation coefficient. The method used for computing the confidence interval was taken from Devore's *Probability and Statistics* text [Dev95].

3.7 Problems with Defect Data

This research initially focused on defect data as the primary process measure for which product measures would be correlated against. However, because the defect data was recorded at a level that did not map to specific programs or code, the data could not be used to draw any correlations with product measures. The following explains this further.

AMC/CSS handles each BCR and SPR as a complete software development cycle including: analysis, preliminary design, detail design, coding, unit testing, and formal testing. They record defect data by BCR or SPR and prioritize the defect according to MIL-STD-498 [Mil94] as illustrated in Table 3-1. The defects are categorized according to phase of the development cycle in which they were detected. Appendix C contains the defect data provided by AMC/CSS. It displays defects by release and BCR or SPR. It also shows which stage of the development cycle the defect was detected.

Because the data provided was at such a high level, it could not be determined which program or module was the cause of the defect. Therefore, this research was unable to use the defect data to draw any correlations with other measures.

Table 3-1. Defect Classifications According to MIL-STD-498 [Mil94]

Priority	Applies if a problem could:
1	a. Prevent the accomplishment of an operational or mission essential capability b. Jeopardize safety, security, or other requirement designated "critical"
2	a. Adversely affect the accomplishment of an operational or mission essential capability and no work-around solution is known b. Adversely affect technical, cost, or schedule risks to the project or to lifecycle support of the system, and no work-around solution is known
3	a. Adversely affect the accomplishment of an operational or mission essential capability but a work-around solution is known b. Adversely affect technical, cost, or schedule risks to the project or to lifecycle support of the system, but a work-around solution is known
4	a. Result in user/operator inconvenience or annoyance but does not affect a required operational or mission essential capability b. Result in inconvenience or annoyance for development or support personnel, but does not prevent the accomplishment of those responsibilities
5	a. Any other effect.

3.8 Comparing Manhours with Product measures

The research also focused on the manhours measures reported on the IAWs. Manhours were mapped to each program that was changed or created. The manhour data did not map to lower levels such as the modules or statements of the program. Ergo, each correlation was computed by using the program totals for each of the product measures. The specific manhour correlations derived as well as the results and discussions of the manhour correlations are presented in Chapter 4.

3.9 Comparing Product Measures with Product measures

This research also investigated correlations between product measures. It investigated whether the product measures derived from the source code correlated with one another. The

product measures were derived from the source code at the module level and compared at the module level. Two different types of product measure comparisons were investigated.

The first type, derived from the baseline version of code, reflects the status of the code before any changes were made in subsequent versions. This comparison looked at product measures from every module in the systems and derived sample correlation coefficients between the product measures. For example, it investigated whether the size of a module positively correlated with the cyclomatic complexity of the module.

The second type, derived from the changed or added modules from the three revisions, investigated whether changes in one source code measure effected changes to other source code measures. This comparison looked at changes for each of the product measures for every module in the systems that experienced a change. It took the differences from each product measure between revisions and derived sample correlation coefficients for the differences. For example, it investigated if a change in the size of a module positively correlated with a change in the cyclomatic complexity of the module.

The specific product correlations derived as well as the results and discussions of the product measure correlations are presented in Chapter 4.

3.10 Summary

This chapter has discussed the methodology used to collect the software product and process measures. It outlined the types of measures that were examined for correlations as well as how the degree of correlations were computed. It also explained how confidence intervals were computed for the compared data that had moderate or strong sample correlation coefficients. The specific measures as well as the results and discussions of this methodology are presented in Chapter 4 of this paper.

4. Data Analysis and Results

This chapter reports and discusses the findings of the methodology chapter of this thesis. It displays the scatter plots and the degree of linear correlation for each of the compared measures. 95% confidence intervals were computed for those comparisons that had a moderate or strong sample correlation coefficient. The measures compared, the sample correlation coefficients, and the confidence intervals will be summarized in a table for each category of measures. In each table, r represents the sample correlation coefficient; CI_L and CI_U represent the lower and upper bound confidence intervals, respectively.

This chapter will then elaborate on the findings and give some insight on what the findings may indicate. These findings may then be used to determine whether AMC/CSS should consider modifying certain processes in their measurement procedures.

4.1 Using Defect Data for Prediction

From the onset, one of the hypotheses of this research was that a positive correlation could be found between defect data and program complexity. A study by Henry et al. [Hen79] and several studies using McCabe's Cyclomatic Complexity measure [Wal79], [Hen81b], [War89], [Sch79], and [Hei94] discovered correlations between the particular complexity metric being used and defects found in the specific systems analyzed. If this research could have shown a positive correlation between defect data and complexity measures, it could have provided AMC/CSS with information that could be used for predicting later lifecycle workloads. For instance, if it could be shown that higher complex modules resulted in higher defects in the code, this information could possibly be used to predict a high number of errors for highly complex

modules. In turn, as Jones states [Jon91], this could be used to predict maintenance efforts, cost

overruns, or schedule slips that occur later in the software's lifecycle for highly complex

modules. However, the defect data collected by AMC/CSS did not map to the specific code or

program that caused the defect. Because the defects did not map to code, this research was

unable to investigate relationships between the defect data and the complexity of the code.

4.2 Manhour Data Comparisons

The following definitions apply for the product measures used to compute the degree of

correlation with the manhours measure:

- *Affected Statements*: The total number of statements that were either added, changed, or deleted in the program. For example if a module had two statements added, two statements deleted, and two statements changed, the total "affected statements" is six.

- *Pre-Cyclomatic Complexity*: The total cyclomatic number of the program before the change.

- *Pre-Information Flow*: The total information flow of the program before the change.

- *Pre-Number of Statements*: The total number of statements of the program before the change.

- *Post-Cyclomatic Complexity*: The total cyclomatic number of the program after the change.

- *Post-Information Flow*: The total information flow of the program after the change.

- *Post-Number of Statements*: The total number of statements of the program after the change.

- *Change in Cyclomatic Complexity*: The net change in cyclomatic complexity for a module (can be negative).

- *Change in Information Flow*: The net change in information flow for a module (can be negative).

- *Change in Program Size*: The net change in the number of statements for a module (can be negative).

Scatter plots were constructed and sample correlation coefficients were computed for the following four categories:

1. Manhours vs. Affected Statements
2. Manhours vs. Post[1]-Cyclomatic Complexity
3. Manhours vs. Post[1]-Information Flow
4. Manhours vs. Post[1]-Number of Statements

These measurements were taken for 39 programs that were either changed or added during the three version releases of the software observed. The raw product measurement data used for computing the degree of correlations can be found in Appendix G.

Table 4-1 illustrates the sample correlation coefficients for the manhour and product measures outlined above. It also shows the 95% confidence intervals for the sample correlation coefficient that showed a strong linear correlation between the measures. Figure 4-1 is a scatter plot that illustrates the linear relationship between manhours and affected statements. The scatter plots for the remaining correlations can be found in Appendix H.

Table 4-1. Initial Manhour Sample Correlation Coefficients & CIs

r	CI_L	CI_U	Source Code Measure
.94	.88	.97	Affected Statements
.39	-	-	Post-Cyclomatic Complexity
-.03	-	-	Post-Information Flow
.48	-	-	Post-Number of Statements

---

[1] Only "Post" measures were observed because some code (new code) did not have "Pre" measures.
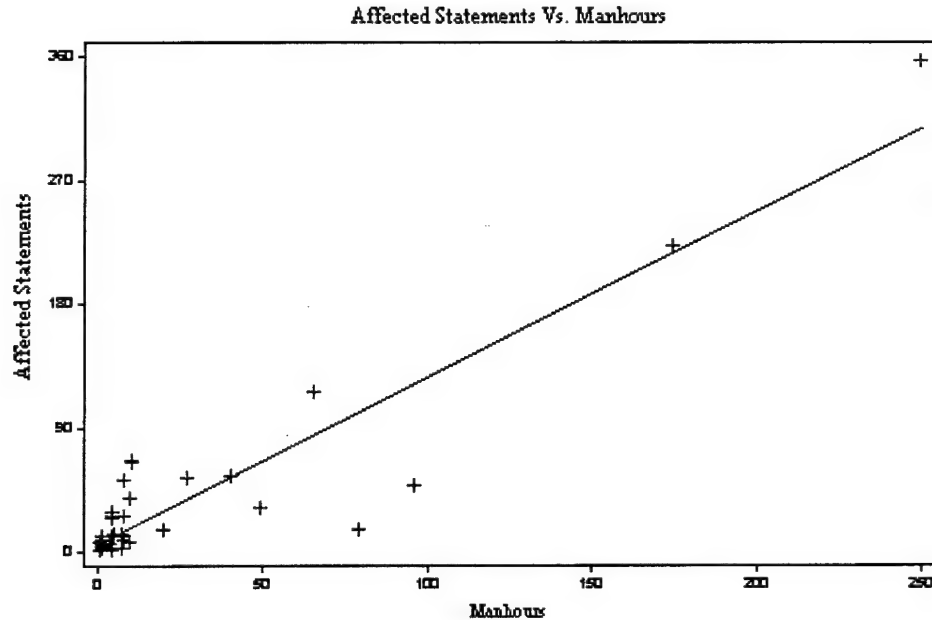
Figure 4-1. Scatter Plot for Manhours Vs. Affected Statements

4.2.1 Comparing Manhours with Affected Statements

If empirical data can be kept for ongoing development projects for the number of

manhours it actually takes to produce code, this data could be used to help managers estimate

future projects of similar types more precisely. With this in mind, this research attempted to see

if the manhour data being collected by AMC/CSS along with the affected statements data

derived from the source code could be used for estimating effort in future projects. If a high,

positive correlation existed between manhours and the number of statements affected during a

change, these findings could be used as empirical data to provide AMC/CSS with information

that may help them estimate the effort that will be needed on other projects of the same nature.

The findings show a very high, positive correlation with the number of statements affected and the number of manhours applied. It also showed a tight confidence interval suggesting that the correlation coefficient for the population would be strong. AMC/CSS estimates the number of affected statements a project will take. However, sometimes these estimates were somewhat inaccurate. This is to be expected because if is difficult to know exactly how many LOCs it will take to complete a change. However, if more accurate estimates of affected statements could be made, and knowing that manhours correlate highly with affected statements, this information could be used to estimate the amount of time that will be needed to complete a project.

4.2.2 Comparing Manhours with Complexity and Size Measures

As Table 4-1 illustrates, only weak sample correlation coefficients were found with the manhour data against cyclomatic complexity, information flow, and number of statements. This was particularly disappointing for the complexity measures because this research had hypothesized that complexity would affect the time it took to make changes to the code. If it had turned out that the manhours were highly correlated with the complexity of the code it could serve a two-fold purpose:

1. It would give managers and developers estimating ability before code is even written. If it can be derived from the specifications how complex the code will be by determining the cyclomatic number or information flow, the information could be used to help estimate the effort needed, and

2. It could give managers and developers advanced warning of code that may take longer than expected to write. This could enable the developers to restructure the specifications in an attempt to reduce the complexity of the code.

50

This research looked at size vs. manhours to see if perhaps the size the module had an effect on the manhours. It investigated whether larger modules were more complex, therefore making them more difficult to change or extend. This comparison also turned up a weak linear correlation. Consequently, for the particular organization and application researched, no correlation was found between the size of a module and the manhours needed to modify it.

It is difficult to say why no correlations existed with this comparison. Brooks [Bro95] cites many factors that may influence the manhour tracking such as computer downtime, meetings, informal conversations, paperwork, personal time, and sickness, etc. If these factors, or others, were included in the identification of the manhours that went into a project, it would be very difficult to draw any correlations.

4.2.3 Further Analysis of Manhour Data

Although not originally planned, further analysis was conducted on the manhours data by segregating the data from the revisions into two categories: new code and changed code. In other words, this research looked at the same types of correlations between manhours and the product measures investigated above; however, now the correlations were done on two different categories of the manhours data. There were 10 new programs added and 29 programs changed over the period of the three releases for a total of 39 programs. See Appendix G for the raw product measures.

4.3 Comparing Manhours with Only Changed Code

There were 29 programs that were changed by direction of a BCR or SPR over the three revisions of the system observed in this research. Although the sample size was only 29, it is

considered large enough to use the Central Limit Theorem[2] and consider to have a normal

distribution.

Scatter plots were constructed and sample correlation coefficients were computed for the

following 7 categories for the new code:

1. Manhours vs. Affected Statements
2. Manhours vs. Pre[3]-Cyclomatic Complexity
3. Manhours vs. Pre[3]-Information Flow
4. Manhours vs. Pre[3]-Number of Statements
5. Manhours vs. Post-Cyclomatic Complexity
6. Manhours vs. Post-Information Flow
7. Manhours vs. Post-Number of Statements

These sample correlation coefficients accounted only for the code changed during the

three version releases of the software observed. This segregation of the code was done to see if

any additional information could be derived.

Because this dealt with strictly changed code, the analysis looked for correlations with

the source code measures before and after the change. The raw product measures for the

changed code can be found in Appendix G.

Table 4-2 illustrates the sample correlation coefficients for manhour and product

measure data described in Chapter 3 of this paper. It also shows the 95% confidence intervals

for the sample correlation coefficients that showed a moderate linear correlation between the

measures. Figure 4-2 is the scatter plot illustrating the correlations between manhours and

affected statements. The scatter plots for the remaining correlations can be found in

Appendix H. The following sections will elaborate further.

---

[2] Generally, the Central Limit Theorem considers a data set large enough to represent a normal distribution
if the data set is > 30.

[3] "Pre" measures were now correlated because new code is not being used in this category

Table 4-2. Sample Correlation Coefficients & CIs for Only Changed Code

r	CI$_L$	CI$_U$	Measure
.52	.19	.75	Affected Statements
.12	-	-	Post-Cyclomatic Complexity
-.05	-	-	Post-Information Flow
.10	-	-	Post-Number of Statements
.08	-	-	Pre-Cyclomatic Complexity
-.08	-	-	Pre-Information Flow
.05	-	-	Pre-Number of Statements
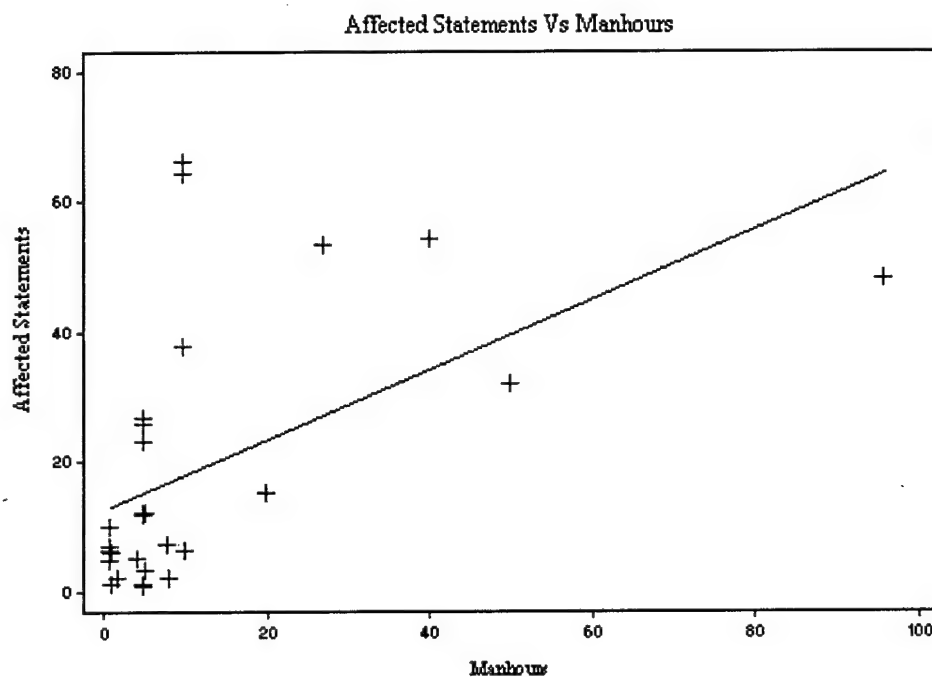
Figure 4-2. Manhours vs. Affected Statements (Changed Code)

4.3.1 Comparing Manhours with Affected Statements (changed code)

The sample correlation coefficient between manhours and affected statements dropped significantly for changed code versus new code. It now showed only a moderate, bordering on weak, linear correlation. This suggested that the new code had a significant influence on the

53

high linear correlation of the two sets of data when the changed code and new code were correlated together in the previous section.

The 95% confidence interval also widened significantly. This reveals that it is unlikely that a moderate linear relationship exists for the correlation coefficient from the population of only changed code.

The fact that the new code had such a significant influence on the initial manhour comparisons could suggest that it is much easier to predict the time it takes to develop code from scratch versus changing existing code. This perhaps could be attributed to many factors which make it more difficult to make changes in existing code such as the complexity of the existing code, the size of the existing modules, determining how to extend the existing code, determining how modules are dependent upon one another, and cross-team communications, etc [Jon91].

4.3.2 Comparing Manhours with Complexity and Size (changed code)

As Table 4-2 illustrates, only weak sample correlation coefficients were found with the manhour data against cyclomatic complexity, information flow, and number of statements for both before and after the change. These sample correlation coefficients were significantly weaker than when the sample correlation coefficients were computed with both the changed code and new code. This, once again, would suggest that the new code had a significant influence on the slightly higher (although still weak), positive correlation of the two sets of data when the changed code and new code were correlated together in the previous section. The reason for this is a topic for future research.

54

4.4 Comparing Manhours with Only New Code

There were 10 programs added by direction of a BCR or SPR over the three revisions of the system observed in this research. Because the sample data set was so small, a normal distribution representation could not be assumed. This research computed the sample correlation coefficient and confidence intervals for these measures with a caveat that the data is not significantly large enough to conclude the sample data is a good representation of the population.

Because this category deals with only new code, no "changed" or "pre" data exists, hence it was only necessary to look at the created code. Scatter plots were constructed and sample correlation coefficients were computed for the following 3 categories for the new code:

1. Manhours vs. Number Statements
2. Manhours vs. Cyclomatic Complexity
3. Manhours vs. Information Flow

These comparisons account for only the new programs added during the three version releases of the software observed. Because this dealt with strictly new code, the analysis looked for correlations with the source code measures after the code was written. The raw product measures for the new code can be found in Appendix G.

Table 4-3 illustrates the sample correlation coefficients for manhour and product measure computed. It also shows the 95% confidence intervals for the sample correlation coefficients computed between the measures. Figure 4-3 through 4-5 are the scatter plots illustrating the linear relationship between these measures.

Table 4-3. Sample Correlation Coefficients and CIs for Only New Code

r	CI_L	CI_U	Measure
.99	.96	1	Number Statements
.98	.91	.99	Cyclomatic Complexity
.83	.42	.95	Information Flow

Number of Statements Vs Manhours
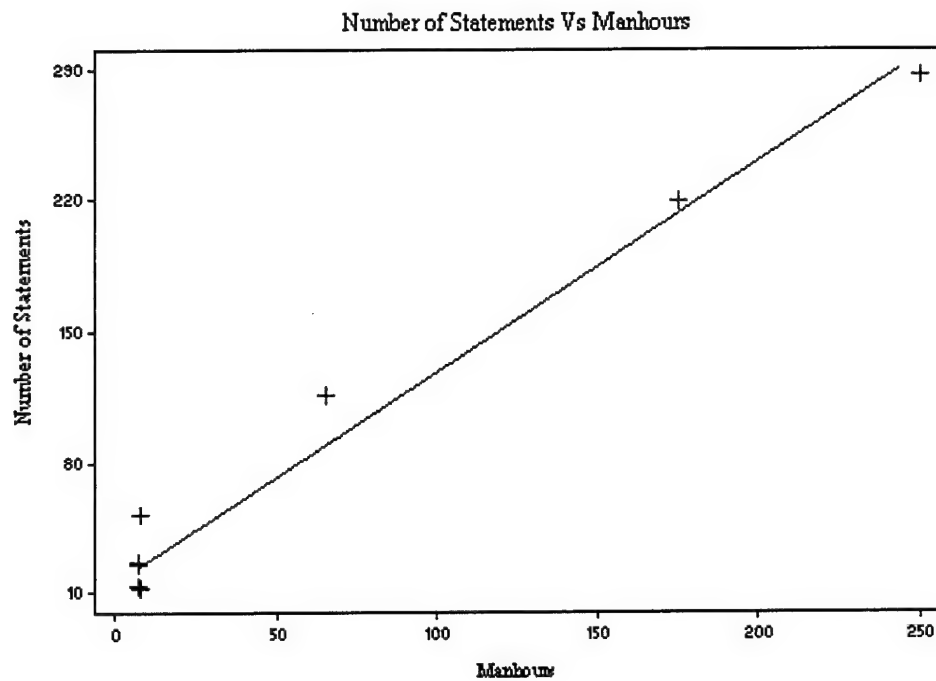
Figure 4-3. Manhours vs. Number of Statements (New Code)

Manhours vs. Cyclomatic Complexity
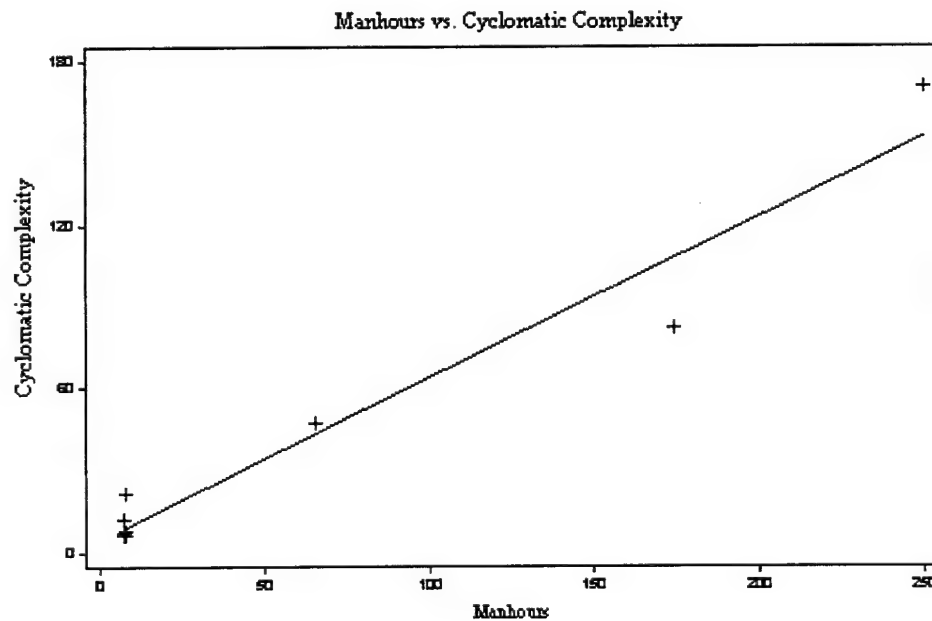
Figure 4-4. Manhours vs. Cyclomatic Complexity (New Code)

56
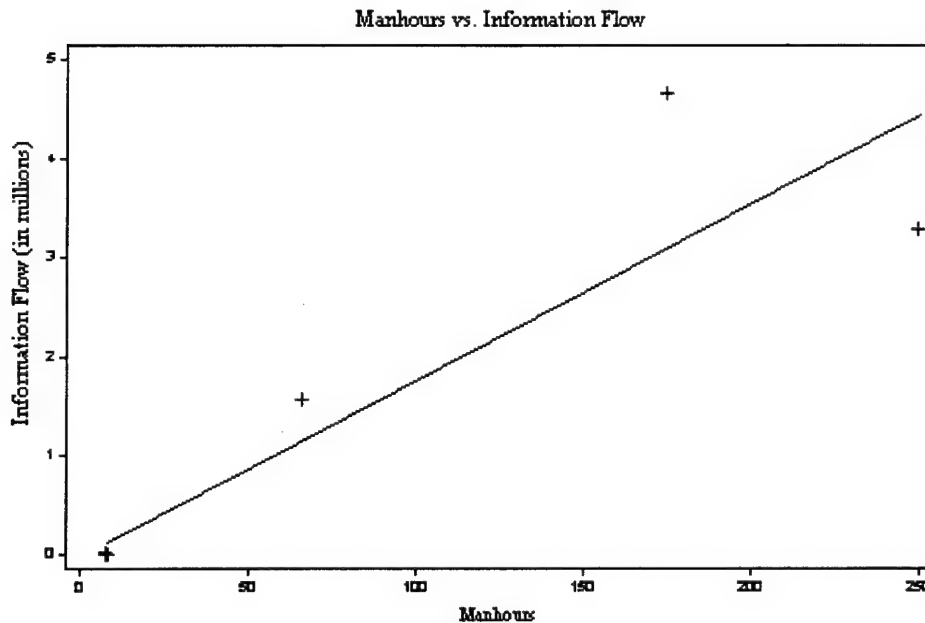
Figure 4-5. Manhours Vs. Information Flow (New Code)

The correlations with manhours vs. the number of statements, cyclomatic complexity, and information flow were very strong for the new code. However, to make inferences about data, the set of data must be large enough to represent the actual distribution of the data. The Central Limit Theorem [Dev95] states that the sample size should be at least 30 to give a distribution that reflects closely to the actual distribution. This sample size consisted of only of 10 programs. Therefore, we cannot make assumptions that these 10 programs are a statistically good representation of what to expect with all new code. However, from viewing the scatter plots in Figures 4-3 through 4-5, the data suggest that a strong trend exists between the compared measures, especially with the manhours versus the number of statements comparison. If the results were the same on a larger set of data (> 30) and the size of the code to be developed was estimated correctly, it could be inferred that AMC/CSS could accurately predict the time it takes

to develop new code; assuming these types of measures are routinely tracked within the organization.

4.5 Comparing Source Code Measures from the Baseline Code

Source code measures were correlated for each module from the baseline version of code. The raw product measures can be found in Appendix B. Scatter plots were constructed and sample correlation coefficients were computed for the following 4 categories:

1. Cyclomatic Complexity with Number of Statements
2. Information Flow with Number of Statements
3. Cyclomatic Complexity with Information Flow
4. Cyclomatic Complexity with Nesting Level

Table 4-4 illustrates the product measure sample correlation coefficients found. It also shows the 95% confidence intervals for the sample correlation coefficients that showed a moderate linear correlation between the measures. Figure 4-4 is a scatter plot illustrating the linear relationship between cyclomatic complexity of a module and the module's number of statements. The scatter plots for the remaining correlations can be found in Appendix H. Excluding COBOL exit paragraphs, there were over 2700 modules used for the sample set. The raw product measures from the baseline can be found in Appendix B.

Table 4-4. Sample correlation coefficients from Baseline Source Code

r	CI_L	CI_U	Measure
.64	.62	.66	Cyclomatic Complexity with Number Statements
.56	.53	.59	Information Flow with Number Statements
.35	-	-	Cyclomatic Complexity with Information Flow
.40	-	-	Cyclomatic Complexity with Maximum Nesting Level
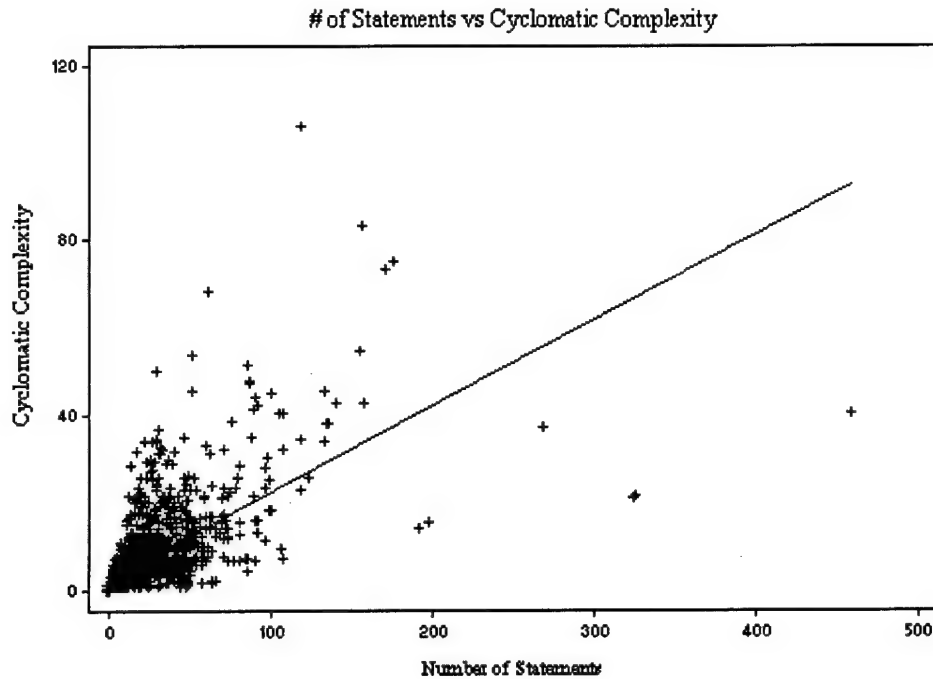
Figure 4-6. Product Measures of Size vs. Cyclomatic Complexity

4.5.1 Comparing Cyclomatic Complexity with Number of Statements

Although McCabe [McC76] suggested that size and cyclomatic complexity measures are independent, this analysis showed a moderate linear correlation between size and cyclomatic complexity. Also, because the sample set was so large, the confidence intervals were very tight for this comparison. This suggests that the sample correlation coefficient is a good reflection of the population's correlation coefficient. This however, does not mean that the two measures are necessarily dependent upon one another. There were several modules throughout the code that had cyclomatic numbers of only 1, but which were relatively large.

4.5.2 Comparing Information Flow with Number of Statements

The information flow measure had a moderate linear correlation with the number of statements. This would seem obvious because the size of the module (number of statements) is

used to compute the information flow measure. However, many other factors are involved with the information flow measure and it should not be proven that the measures compared are dependent upon one another. There were several modules of code that had an information flow of zero, but had up to 50 statements. This is because no variables were used or updated in the modules, resulting in the size not being a factor (See Equation 2-4 in Chapter 2).

4.5.3 Comparing Information Flow with Cyclomatic Complexity

This correlation was an attempt to parallel Moe's work [Moe91] in which she attempted to use complexity metrics to measure the same piece of code to see if each measure returned the relatively same correlation strength. If, over time, these measurements returned relatively the same results on all source code, it would be redundant to use both product metrics in a measurement process. As shown in Table 4-4, this linear correlation was weak, concluding that, at least for the source code studied in this research, the information flow measure and cyclomatic complexity measure will not necessarily return the same degree of complexity on the same piece of code.

4.5.4 Comparing Cyclomatic Complexity with Maximum Nesting Level

Nesting level is independent of cyclomatic complexity, but cyclomatic complexity is not independent of nesting level. This is because cyclomatic complexity can increase in a structure without increasing nesting level. This could be due to compound predicates, or the addition of smaller sequential decision statements to the structure. However, any time nesting level increases, cyclomatic complexity increases [Con86].

This correlation was an attempt to see if cyclomatic complexity correlated with the maximum nesting level of the module. This correlation turned out to be somewhat weak. This is

60

not too surprising as the correlation was using the entire modules cyclomatic complexity and correlating it with the one statement in the module that had the highest nesting level. To get a better assessment of this type of correlation, modules would have to be analyzed at the statement level and measure the degree of linear correlation between each statement's cyclomatic complexity and its nesting level. This comparison was not made because it is beyond the scope of this research.

4.6 Comparing Source Code Measures from the Changed Modules

The following product measures were compared and sample correlation coefficients were derived for each module from the changed or added versions of code. These correlations were computed because, while analyzing the data, it appeared that when statements were added, deleted, or modified in a module, cyclomatic complexity changed as well. Scatter plots were constructed and sample correlation coefficients were computed for the following categories:

1. Change in cyclomatic complexity with change in number of statements
2. The absolute value of the change in cyclomatic complexity with affected number of statements
3. The absolute value of the change in the number of statements with affected number of statements

Table 4-5 illustrates the product measure sample correlation coefficients found. It also shows the 95% confidence intervals for the sample correlation coefficient for each compared measure. Figure 4-5 is a scatter plot illustrating the linear correlation between the change in cyclomatic complexity of a module with the change in the module's number of statements. The scatter plots for the remaining correlations can be found in Appendix H. See Appendix F for the

61

raw product measures used for these correlations. The sample size consisted of 210 compared modules.

Table 4-5. Sample correlation coefficients from Changed Modules Source Code

r	CI$_L$	CI$_U$	**Measure**
.81	.76	.85	Change in cyclomatic complexity with change in number of statements
.98	.97	.98	Absolute value of change in the number of statements with affected number of statements
.80	.74	.84	Absolute value of change in cyclomatic complexity with affected number of statements
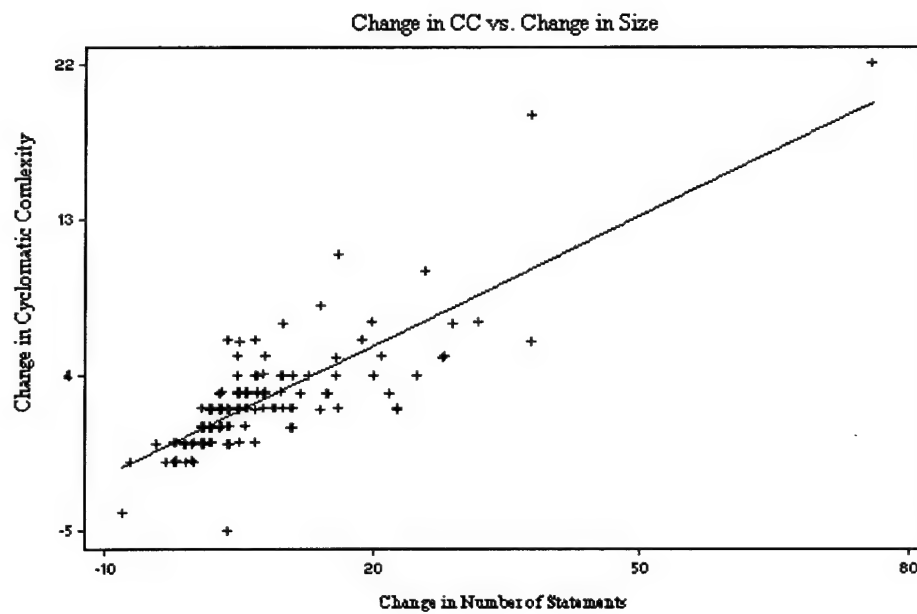
Figure 4-7. Change in Size with Change in Cyclomatic Complexity

4.6.1 Comparing Change in Cyclomatic Complexity with Change in Size

During the analysis of the changes in code, it was observed that cyclomatic complexity changed often when code was modified. This correlation was computed to determine if there was a linear relation between changes in size with changes in cyclomatic complexity. This information could be used for anticipating an increase in cyclomatic complexity when new or changed code is introduced.

The sample correlation coefficient suggests a high, positive correlation between the data. This is a surprising finding because one would not assume that cyclomatic complexity would correlate so strongly with changes in size. This could perhaps be a unique circumstance where the changes made in these three revisions predominantly required the addition or deletion of decision statements. The changes or additions being made during these revisions could reflect a certain class of fixes that address exceptions (i.e. if <condition>) that were either added by new requirements or missed during initial development of the code.

If this research could have shown that defects correlated with cyclomatic complexity, the information could be used in conjunction with these classes of fixes to predict possible defects in the code.

4.6.2 Comparing Absolute Change in Size with Affected Statements

This correlation was computed to see if there was much difference between the total statements affected (added, changed, or deleted) of a module and the absolute change in the module's size. This correlation would reveal if program changes were primarily comprised of modifications to existing code versus adding and deleting lines. Modifying existing statements would not affect the change in size of the module; however, it would increase the number of affected statements.

The results show a very high, positive correlation between affected statements and the size change of the module. This would suggest, as previously stated, that most changes involved adding or deleting statements instead of modifying existing statements. Referring to the previous comparison of change in size to change in cyclomatic complexity, it was suggested that the classes of fixes observed addressed new exceptions. This would generally cause additional code to be added versus changing the existing code thus causing the size change and affected statements to relatively equal.

4.6.3 Comparing Absolute Change in Cyclomatic Complexity with Affected Statements

This correlation is much similar to the correlation computed in section 4.6.1 except that it looked at the affected statements instead of just the change in size, and the absolute change in cyclomatic complexity was used instead of only the change in cyclomatic complexity (could have been positive or negative). Due to the high correlation of size with affected statements and the fact that cyclomatic complexity correlated highly with change in size, it is intuitive that this correlation would also be quite strong. If the changes observed in this research had involved different classes of fixes that did not predominately add code, the results of this comparison could have been much different.

4.7 Summary

This chapter discussed the findings to the comparisons made between the software measures described in Chapter 3 of this thesis. It described how the defect data provided by the owners of the system studied could not be used and therefore no comparisons could be made between the product measures and defect measures. However, several comparisons were done between manhours and the product measures gathered.

High correlations were found between manhours and the product measures for the new code that was developed in each revision. However, there were only 10 programs and due to the Central Limit Theorem [Dev95], the data could not be considered as a good representation of the population. No significant correlations were found between manhours and the product measures for the code that was modified in each revision.

This chapter also discussed the correlations that were found between changes in product measures between revisions. Suggestions were provided on what may have attributed to these correlations. Finally, the chapter discussed the correlations that were also found between the size and the complexity of the baseline code.

Chapter 5 will discuss some problems with the way process measures are being identified by the owners of the system that was studied. It will also provide suggestions on how these process measures should be identified to make them more useful to analyze software processes.

5. Conclusions and Recommendations

This chapter concludes this thesis by presenting some conclusions and recommendations. It covers some ideas and discusses what the findings may indicate. This chapter also provides recommendations on how data could be collected so better linear correlations could be attempted between measures. Finally, it provides suggestions for future research and closes with a few final remarks.

5.1 Conclusions to the Findings

Two of the initial hypotheses of this research were that defect data and manhour data would have a linear correlation with the software complexity. This turned out to be quite difficult to assess with the data provided. This was because the measurements provided by the organization under study were at a level that did not provide enough detail to conduct statistically sound analysis. Jones states [Jon91] that for measurements to be more useful, organizations should separate the data into meaningful subsets by breaking the measurements down into the smallest possible pieces. This researcher believes that if the processes measured were recorded at the lowest possible level, better analysis could have been conducted on the data, and results could have been more conclusive.

5.1.1 Improving Defect Data Collection

The defect data provided could not be used to attempt any comparisons with complexity due to the nature and mapping of the defects. Also, the only defects detected over the period of the three releases were found during the development or maintenance of the code; no defects were reported from the customer during this time frame. Although it is impressive that no

66

defects were found in the field during this period of time, it's not all that surprising. The system that was analyzed has been in the field for over 20 years. Due to its longevity, it is likely that most of the defects in the code have already surfaced and been eliminated. Also, the modifications to the code over the three releases were relatively small compared to the size of the system. This makes it less likely that errors would be introduced into the system.

To be more useful, defect information should be recorded at the lowest possible level in the software system. For example, if a defect is found during a development phase or from the field, attempts should first be made to map the defect to the part of statement that was the source of the defect. If this cannot be determined, attempt to map the defect to the statement that was the source of the defect. If a statement cannot be determined, map the defect to module. And finally, if none of these lower level mapping can be done, map the defect to the program that was the source of the defect. With these low-level mappings, better analysis can be conducted on the source code and defect data to see if trends exist for code that causes an inordinate amount of defects, or if certain program structures or attributes may cause an inordinate amount of defects.

Once a history of defect data is recorded at the lowest possible level over a period of at least 4 releases, this researcher would suggest reinvestigating the correlation between the defect data and the cyclomatic complexity of the code.

5.1.2 Improving Manhour Data Collection

The manhour data provided by the sponsor mapped to the individual programs that were added or modified during the three revisions of the system. This allowed correlations to be computed between manhours and the cumulative complexity and size measures of the program.

67

The highest sample correlation coefficient found was between manhours and affected statements during a change. However, as discussed in Chapter 4, the overall comparison of manhours with affected statements was significantly influenced by the new code.

Although the new code sample set was small, it was noted that tracking manhours with new code is more reflective of the work being done. It is difficult to say what could attribute to the low degree of linear correlation between manhours and the changed code. Several factors could have influenced the time it took to complete the changes such as complexity of the code, determining how to extend the existing code, or cross-team communications, etc.

The manhour data could be more useful if it were broken down into smaller subsets such as the time needed for requirements, analysis, design, and coding, etc. This type of low-level recording could provide insight into why some sections of code took longer to code than other sections of code. Trends could be investigated at lower levels to determine if size or complexity plays a factor in the time it takes to: understand requirements, analyze the code, design the code, or write the code.

Once a history of manhour data is recorded at a lower level, the data could be analyzed to determine which areas of the development process are taking the most time. The low-level data could help identify and eliminate bottlenecks in the development process. It could also identify areas of the development process that need defined processes.

5.2 Suggestions for Future Research

The system analyzed in this research has been in the field for over 20 years. With a system this far into its lifecycle, it is not surprising that the modifications being made to it are small, and the amount of defects being discovered by customers is negligible. This could be because the system has matured and no longer requires many changes. The low amount of

defects being found in the field could indicate that the system has been in existence for so long that most of the defects have been found and corrected.

Future research should attempt to find a system early in its lifecycle: perhaps only a few years old. This type of system could be going through larger modifications and experiencing more field defects than systems that have been in the field awhile. Another factor to consider is the maturity of the organization's software process. Finding an organization that maintains low-level measurements for their software processes could ensure the data being used for the analysis is more valid [Jon91].

If a history of low-level process measures are available for future research, the primary comparison this researcher would suggest reinvestigating is the defect data versus cyclomatic complexity. If these two measures showed a strong correlation, the information could help software managers estimate defects by evaluating the source code. With this information, managers could predict potential problems that could cause schedule slippages and cost overruns. Software managers could also use the information to modify processes to ensure the cyclomatic complexity of modules are kept at the lowest level possible, thus reducing the possibility of defects. Another comparison this researcher suggests reinvestigating is the manhour data versus cyclomatic complexity. For many of the same reasons stated above, if correlations can be found between manhour data and cyclomatic complexity, the information could be used to help software managers directly estimate manhours by estimating the cyclomatic complexity from specifications and requirements of future projects of the same nature.

For future studies, this researcher suggests not using Henry and Kafura's Information Flow measure for analyzing COBOL programs. The Information Flow measure is highly

influenced by the size of the module being measured. Often, COBOL modules contain many statements which create a large variance in the results of the measure from one module to the next. Another factor to consider is that only global variables are used for COBOL systems. COBOL modules do not pass parameters between each other when they are called. This eliminates a large portion of what the metric is trying to measure. And finally, COBOL modules update and use many variables. In this research, there were so many variables being used and updated in some modules that the information flow measure returned numbers in the billions. This made the measure practically useless due to the enormous variance between modules.

5.3 Contributions

This research provided empirical data to the relatively unexplored field of using metrics on COBOL systems. Considering that COBOL is still the predominant programming language worldwide, this researcher feels more work needs to be done with metrics in the COBOL arena. This research also identified weaknesses in the existing metrics effort used by the owners of the system being studied. It also provided suggestions on how software organizations can collect more meaningful measures on their software. It showed the importance of collecting data at low levels and how the low-level data could possibly be used to help software managers improve processes and predict other lifecycle activities. If measures are recorded at the lowest level possible, they provide a sound, empirical base on which comparisons can be measured. Recording measures at the lowest possible level also eliminates errors that could be made when interpreting measures that were recorded at a higher level.

5.4 Final Remarks

It is likely that product measures and metrics derived from source code can play a significant role in helping software managers and software engineers improve the way they develop software systems. Although this research was inconclusive in determining that source code measures can be used to estimate other process measures, this researcher believes, given a COBOL system that is relatively young with a history of maintaining low-level process measures, that product measures such as cyclomatic complexity could be used to estimate other lifecycle process measures on COBOL legacy systems.

Bibliography

Ada92   AdaMAT™ *Reference Manual, Version 1.0.* Andover, Massachusetts. Dynamics Research Corporation Systems Division

Ana96   Analytical Software. *Statistix® for Windows User's Manual.* Tallahassee Florida: Analytical Software, 1996.

Bau92   Baumert, John H., McWhinney, Mark S. "Software Measure and the Capability Maturity Model", *Technical Report CMU/SEI-92-TR-25.* Pittsburgh, Pennsylvania: Software Engineering Institute, Carnegie Mellon University, September 1992.

Bro95   Brooks, Frederick P. Jr. *The Mythical Man-Month: Essays on Software Engineering.* Menlo Park, California: Addison-Wesley Longman, Inc., 1995.

Con86   Conte, S. D., Dunsmore, H.E., & Shen V.Y. *Software Engineering Metrics and Models.* Menlo Park California: The Benjamin/Cummings Publishing Co. Inc., 1986.

Cur79   Curtis, B., S. Sheppard, P. Hilliman, M. Borst, and T. Love "Measuring the Psychological Complexity of Software Maintenance Tasks with the Halstead and McCabe Metrics," *IEEE Transactions on Software Engineering, SE-5, 2*: 96-104 (March 1979).

Dev95   Devore, Jay L. *Probability and Statistics for Engineering and the Sciences, 4th ed.* New York: Wadsworth Inc., 1995.

Fen97   Fenton, Norman E. & Shari Lawrence Pfleeger. *Software Metrics: A Rigorous Approach.* London: PWS Publishing Co., 1997.

Fens97   Fenstermacher, Scott. McCabe & Associates. Electronic Mail Correspondence. Address: scott@mccabe.com. 7 August 1997

Gib89   Gibson, V. and J. Senn, "System Structure and Software Maintenance Performance," *Communications of the ACM,. 32, 3*: 347-358 (March 1989)

Gra94   Grauer, Robert T. and Carol Vazquez Villar. *COBOL From Micro to Mainframe.* Englewood Cliffs NJ: Prentice Hall, Inc., 1994.

Hal77   Halstead, Maurice H. *Elements of Software Science.* New York: Elsevier North-Holland, Inc., 1977.

Hei94   Heimann, David I., "Using Complexity-Tracking in the Software Development Process," *Proceedings of the 1994 McCabe Users Group Conference, Section III*: 1-36 (May 1994)

Hen81   Henry, Sallie and Dennis Kafura. "Software Structure Metrics Based on Information

Flow," *IEEE Transactions on Software Engineering, SE-7, 5:* 510-517 (September 1981).

Hen81b   Henry, S., D. Kafura, and K. Harris. "On the Relationships Among Three Software Metrics," *1981 ACM Workshop/Symposium on Measurement and Evaluation of Software Quality*, (March 1981)

Hen79   Henry, Sallie Marie *Information Flow Metrics for the Evaluation of Operating Systems' Structure*. Ph.D. dissertation. Iowa State University, Ames Iowa, 1979.

Hum89   Humphrey, Watts S. *Managing the Software Process*. New York: Addison-Wesley Publishing Co., 1989.

Hum92   Humphrey, Watts S. "Introduction to Software Process Improvement," *Technical Report CMU/SEI-92-TR-7*. Pittsburgh, Pennsylvania: Software Engineering Institute, Carnegie Mellon University, June 1992.

Jon91   Jones, Capers. *Applied Software Measurement: Assuring Productivity and Quality*. New York: McGraw-Hill, Inc. 1991.

Kan93   Kanko, Mark A. "On Gas Gauges and Software Metrics" *Cross Talk: The Software Engineering Report*: 9-18 (Special Edition 1993).

McC76   McCabe, Thomas J. "A Complexity Measure," *IEEE Transactions on Software Engineering, SE-2, 4*: 308-321 (December 1976).

McC96   McCabe, Thomas. "Cyclomatic Complexity and the Year 2000," *IEEE Software*: 115-117 (May 1996).

Mil94   Department of Defense. *Software Development and Documentation*. MIL-STD-498. Washington: GPO, 5 December 1994.

Moe91   Moe, Michelle. *Control-flow complexity metrics for COBOL programs*. MS thesis, South West Texas State University, San Marcos Texas, 1991.

Nic86   Nickerson, Robert C. *Fundamentals of Structured COBOL*. Boston, Massachusetts: Scott, Foresman and Company., 1986.

Pau93   Paulk, Mark C., Bill Curtis, Mary Beth Chrissis, Charles V. Weber. *Capability Maturity Model for Software, Version 1.1*. Pittsburgh, Pennsylvania: Software Engineering Institute, February 1993.

Pin97   Pine, Jim. *Headquarters On-Line System for Transportation (HOST) Program Management Review*. Computer Systems Squadron, Air Mobility Command, Scott AFB, IL, 10 Jun 1997.

Rea90   Reasoning Systems. *Refine Users Guide*. Palo Alto California: Reasoning Systems

Inc., May 1990.

Rea95   Reasoning Systems. *Refine/COBOL Users Guide*. Palo Alto California: Reasoning
         Systems Inc., May 1995.

Rum91   Rumbaugh, James, Michael Blaha, William Premerlani, Frederick Eddy, and William
         Lorensen. *Object-Oriented Modeling and Design*. Englewood Cliffs, New Jersey:
         Prentice Hall Inc. 1991.

Sch79   Schneidewind, N. and H. Hoffmann, "An Experiment in Software Error Data
         Collection and Analysis," *IEEE Transactions on Software Engineering, SE-5, 3*:
         276-286 (May 1979)

She88   Shepperd, Martin. "An evaluation of Software Product Metrics," *Information and
         Software Technology, 30*: 177-188 (April 1988).

Shep88   Shepperd, Martin. "A Critique of Cyclomatic Complexity as a Software Metric,"
         Software Engineering Journal: 30-36 (March 1988).

She92   Shepperd, Martin. "Products, processes and metrics," *Information and Software
         Technology, 34*: 674-680 (October 1992).

Tri95   Tristram, Claire, "Do you really (still) need...COBOL?," *Open Computing*: 57-58
         (June 1995).

Wal79   Walsh, T., "A Software Reliability Study Using a Complexity Measure," *AFIPS
         Conference Proceedings, National Computer Conference, 48*: 761-768, 1979.

Wal96   Wallace, Dolores R., Arthur H. Watson, Thomas J. McCabe. "Structured Testing: A
         Testing Methodology Using the Cyclomatic Complexity Metric," *National Institute
         of Standards and Technology Special Publication 500-235*: (August 1996).

War89   Ward, W., "Software Defect Prevention Using McCabe's Complexity Metric,"
         Hewlett-Packard Journal, 40, 2: 64-69 (April 1989)

VITA

Lieutenant Richard Edward Boone was born on 1 May 1962 in Monroe, Michigan. He spent his entire childhood in Southeastern Michigan where he graduated in 1980 from Airport High School in the small village of Carleton. In October, 1981, he enlisted in the Air Force as a Telecommunications Operator. He later became a computer operator, then a computer programmer.

He spent a little over 12 years enlisted attaining the rank of Technical Sergeant. His assignments included Rockville, Iceland; Patrick AFB, Florida; Hahn AB, Germany; Camp Smith, Hawaii; and the U.S. Air Force Academy, Colorado respectively. While stationed in Hawaii, he began attending school part time at Hawaii Pacific University (HPU). He continued taking classes at local colleges after moving to Colorado and graduated Cum Laude from HPU in June, 1992 with a Bachelor of Science Degree in Computer Science. He later applied for Officer's Training School (OTS) and was accepted.

After graduating OTS in March, 1994, he was assigned to the Reconnaissance Systems Program Office, Aeronautical Systems Center, Wright-Patterson AFB where he worked as a Acquisitions Program Manager and Executive Officer.

In May, 1996, he entered the School of Engineering, Air Force Institute of Technology (AFIT). He graduated on 16 Dec 1997, earning a Master of Science in Computer Systems, with a specialization in Software Engineering.

Following AFIT, he was assigned to the HQ Materiel System Group, Hill AFB, Utah.

Permanent Address: 13809 Sumpter Road
Carleton, Michigan 48117

Appendix A

Refine/Cobol Code

Table of Contents

Program for Collecting Product Measures

```
% Cob-out.re - code for computing the cobol source code
%  product metrics.  It computes the following metrics:
% - Size of a module
% - McCabe's Cyclomatic Complexity Number of a module
% - Maximum Nesting Level of a module
% - Information Flow of a module
%   09/09/97


%  The following is needed to include the Cobol features
%  of Refine/Cobol

!! in-package("RCBU")
!! in-grammar('user)
```

var seq-secs: seq(procedure-section) = [ ]	% A sequence of sections in a procedure
var seq-paras: seq(procedure-paragraph) = [ ]	% A sequence of paragraphs in a section
var seq-ifs: seq(if-statement) = [ ]	% Used for nested if statements
var seq-case-ifs: seq(if-statement) = [ ]	% Used for nested ifs in a case statement
var temp-seq: seq(if-statement) = [ ]	% Temporary variable for nested if check
var para-name: string = [ ]	% Paragraph Name
var prog-name: string = [ ]	% Program Identification
var num-of-paras: integer = 0	% Number of paragraphs in the program
var max-nest-lvl: integer = 1	% The highest nesting level in the program
var nest-lvl: integer = 1	% The current statement's nesting level
var para-lvl: integer = 1	% The highest nesting level in a paragraph
var para-cyclo: integer = 0	% Cyclomatic number of the paragraph
var max-para-cyclo: integer = 0	% Program's highest cyclomatic paragraph
var min-para-cyclo: integer = 99	% Program's lowest cyclomatic paragraph
var max-cyclo-para-names: seq(string) = [ ]	% Names of highest cyclomatic paragraph
var max-info-flow-para-names: seq(string) = [ ]	% Names of highest info flow paragraph
var min-cyclo-para-names: seq(string) = [ ]	% Names of lowest cyclomatic paragraph
var max-nest-para-names: seq(string) = [ ]	% Names of highest nesting paragraph
var seq-in-var: seq(identifier-ref) = [ ]	% Sequence of variables used in a paragraph
var seq-out-var: seq(identifier-ref) = [ ]	% Sequence of variables updated in a para
var para-fan-in: integer = 0	% The fan-in of a paragraph
var para-fan-out: integer = 0	% The fan-out of a pragraph
var para-vars-used: integer = 0	% Num of variables used in a paragraph
var para-vars-updated: integer = 0	% Num of variables updated in a paragraph
var para-num-of-statements: integer = 0	% Num of statements (length) in a para
var para-info-flow: integer = 0	% Information Flow number for a para
var max-para-info-flow: integer = 0	% Highest Info flow in the program
var in-term-count: integer = 0	% Counter for used variables

```
var out-term-count: integer = 0          % counter for updated variables
var proc-div: procedure-division = undefined   % The entire procedure division
var para-struct-name: symbol = undefined   % Name of a paragraph
var p-name: symbol = undefined           % Name of current paragraph
var para-calls-to-para: integer = 0       % Number of calls to current paragraph
var total-calls-from: integer = 0         % Number of calls from current paragraph
```

% The following function is the driver of this program. It takes a sequence of files
% already loaded in the varible seq-file which is done in another program and analyzes
% each file at a time

```
function domore ( ) =
  (enumerate myfile over seq-file do
    doseq(file-definitions(myfile)))
```

% The following function first gets the programs identification, then it processes the
% procedure division. Once the procedure division is processed, it prints out the
% statistics for the program

```
function doseq(cobseq: seq(program)) =
  (enumerate prog over cobseq do
     program-identification-division(prog) - - >
         get-prog-name(program-identification-division(prog));
     program-procedure-division(prog) - - >
         do-proc-div(program-procedure-division(prog)));
   reset-vars ( )
```

% The following function simply resets all the variables after each file is analyzed

```
function reset-vars ( )  =
 seq-ifs < -  [ ] ;
 seq-case-ifs < -  [ ] ;
 temp-seq < -  [ ] ;
 num-of-paras < -  0;
 seq-paras < -  [ ] ;
 seq-secs < -  [ ] ;
 para-name < -  [ ] ;
 prog-name < -  [ ] ;
 num-of-paras < -  0;
 max-nest-lvl < -  1;
 nest-lvl < -  1;
 para-lvl < -  1;
 para-cyclo < -  0;
 max-para-cyclo < -  0;
 min-para-cyclo < -  99;
```

```
        max-cyclo-para-names <- [];
        max-info-flow-para-names <- [];
        min-cyclo-para-names <- [];
        max-nest-para-names <- [];
        seq-in-var <- [];
        seq-out-var <- [];
        para-fan-in <- 0;
        para-fan-out <- 0;
        para-vars-used <- 0;
        para-vars-updated <- 0;
        para-num-of-statements <- 0;
        para-info-flow <- 0;
        max-para-info-flow <- 0;
        in-term-count <- 0;
        out-term-count <- 0;
        para-calls-to-para <- 0;
        total-calls-from <- 0;
        proc-div <- undefined;
        NIL
```

% The following function gets the programs name from the identification division

```
function get-prog-name(id-div: identification-division) =
        prog-name <- cdif-di-to-string(program-name(id-div))
```

% The following function checks to see if there is only one or several sections in the
% procedure division. If the program has only one section, it will be converted to a
% sequence of sections (with only one element) so a common procedure can be called to
% process the procedure division.

```
function do-proc-div(proc: procedure-division) =
        proc-div <- proc;
        defined?(procedure-division-initial-section(proc)) -->
            do-secs([procedure-division-initial-section(proc)]);
        defined?(procedure-division-section-sequence(proc)) -->
            do-secs(procedure-division-section-sequence(proc))
```

% The following function processes the section(s) of the procedure division.

% This checks to see if there is only one or several paragraphs in the section.
% If the section has only one paragraph, it will be converted to a sequence of
% paragraphs (with only one element) a common procedure can be called to process
% the section.

```
function do-secs(secs: seq(procedure-section)) =
    (enumerate sec over secs do
      defined?(procedure-section-initial-paragraph(sec)) - - >
        do-paras([procedure-section-initial-paragraph(sec)]);
      defined?(procedure-section-paragraph-sequence(sec)) - - >
        do-paras(procedure-section-paragraph-sequence(sec)))
```

% The following function process the individual paragraphs in a section. It first gets
% the name of the paragraph and then continues by processing each sentence of the
% paragraph

```
function do-paras(paras: seq(procedure-paragraph)) =
    (enumerate para over paras do
      (para-struct-name < - undefined;
       para-name < - "MAIN";
       defined?(procedure-paragraph-name(para))
            - - > (para-struct-name < - identifier-name(procedure-paragraph-name(para));
                  para-name < - cdif-di-to-string(procedure-paragraph-name(para));
                  size(para-name) > 2 - - > (para-name < - delete(para-name, 1);
                  para-name < - delete(para-name, 1)));
       reset-para-vars ( ) ;
       check-for-calls-to ( ) ;
       count-calls-from(para);
       count-num-of-statements(para);
       do-sentences(procedure-paragraph-sentence-sequence(para));
       get-stats ( ) ;
       print-para-stats ( ) ))
```

% The following function resets the paragraph variable counters each time
% a paragraph is about to be processed

```
function reset-para-vars ( )  =
    para-calls-to-para < - 0;
    total-calls-from < - 0;
    para-cyclo < - 1;
    para-lvl < - 1;
    para-fan-in < - 0;
    para-fan-out < - 0;
    para-vars-used < - 0;
```

```
        para-vars-updated < - 0;
        para-info-flow < - 0


% The following function computes the paragraph's metrics & updates the overall
% program's metrics if necessary.

function get-stats ( )  =
    num-of-paras < - num-of-paras + 1;
    para-vars-used < -  size(seq-in-var);
    para-vars-updated < -  size(seq-out-var);
    para-fan-in < - para-calls-to-para + para-vars-used;
    para-fan-out < - total-calls-from + para-vars-updated;
    para-info-flow < - para-num-of-statements *
                ((para-fan-in * para-fan-out) *
                (para-fan-in * para-fan-out));
    seq-in-var < - [ ] ;
    seq-out-var < - [ ] ;
    para-cyclo > max-para-cyclo - - >
      (max-cyclo-para-names < - [ ] ;
       max-para-cyclo < - para-cyclo;
       max-cyclo-para-names < - append(max-cyclo-para-names, para-name));
    (para-cyclo = max-para-cyclo AND
     para-name ~in max-cyclo-para-names) - - >
       max-cyclo-para-names < - append(max-cyclo-para-names, para-name);
    para-cyclo < min-para-cyclo - - >
      (min-cyclo-para-names < - [ ] ;
       min-para-cyclo < - para-cyclo;
       min-cyclo-para-names < - append(min-cyclo-para-names, para-name));
    (para-cyclo = min-para-cyclo AND
     para-name ~in min-cyclo-para-names) - - >
       min-cyclo-para-names < - append(min-cyclo-para-names, para-name);
    para-info-flow > max-para-info-flow - - >
      (max-info-flow-para-names < - [ ] ;
       max-para-info-flow < - para-info-flow;
       max-info-flow-para-names < - append(max-info-flow-para-names, para-name));
    (para-info-flow = max-para-info-flow AND
     para-name ~in max-info-flow-para-names) - - >
       max-info-flow-para-names < - append(max-info-flow-para-names, para-name);
    para-num-of-statements = 0 - - > (para-cyclo < - 0;
                    para-lvl < - 0;
                    para-info-flow < - 0)
```

% The following function prints out the current paragraph's
% statistics/metrics to include the sub-system name, program name, paragraph-name
% number of statements in the paragraph, the McCabe's number for the paragraph,
% the maximum nesting level in the paragraph, and the information flow metric for
% thr paragraph

```
function print-para-stats ( ) =
        format(true,"~%~D ~D ~D ~D ~D ~D ~D",
            sub-name,prog-name,para-name,para-num-of-statements,
            para-cyclo,para-lvl,para-info-flow)
```

% The following function enumerates over the sequence of all sentences in a paragraph
% and analyzes them

```
function do-sentences(sentences: seq(procedure-sentence)) =
        (enumerate sent over sentences do
            do-statements(procedure-sentence-statement-sequence(sent)))
```

% The following function checks to see if the sentences contribute to cyclomatic
% complexity if the sentence is an if-statement, case-statement, or perform it may
% increase the cyclomatic complexity. This function also calls a function that will
% compute the nesting level of an if-statement%

```
function do-statements(statements: seq(statement)) =
        (enumerate state over statements do
            do-control-flow(state);
            if-statement(state) - - >
                    (do-if-cyclo(set-to-seq(descendants(state)));
                    nest-lvl < - 2;
                    check-nesting(state);
                    check-max-nesting ( ) );
            evaluate-statement(state) - - >
                    (nest-lvl < - 2;
                    (enumerate whn over filter(lambda (obj: object)
                                    evaluate-case(obj),
                      set-to-seq(kids(state))) do
                        seq-case-ifs < -
                            concat(seq-case-ifs,
                                set-to-seq(filter(lambda (obj: object)
                                            if-statement(obj),
                                                kids(whn)))));
                    size(seq-case-ifs) > 0 - - > check-level(seq-case-ifs);
                    do-case-cyclo(set-to-seq(descendants(state)));
                    check-max-nesting ( ) );
            perform-statement(state) - - >
```

```
                    do-perf-cyclo(state);
          read-statement(state) - - > do-read-write-cyclo(state);
          search-statement(state) - - > do-search-cyclo(state);
          write-statement(state) - - > do-read-write-cyclo(state);
          return-statement(state) - - > do-return-cyclo(state))
```

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%
%  THIS SECTION OF CODE COMPUTES SIZE OF THE CURRENT MODULE
%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
```

```
% The following function counts the number of statements in a paragraph
% the result is used as the length portion to compute the Information
% flow metric for each paragraph

function count-num-of-statements(para: paragraph) =
    para-num-of-statements < - size(filter(lambda (obj: object) statement(obj),
            set-to-seq(descendants(para))))
```

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%
%  THIS SECTION OF CODE COMPUTES MCCABE'S CYCLOMATIC COMPLEXITY NUMBER
%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
```

```
% The following function processes a perform statement, it looks to see if it
% is a "perform until" or "perform varying until" statement because these are
% loop structures in Cobol and contribute to the cyclomatic complexity

function do-perf-cyclo(perf: perform-statement) =
  defined?(perform-statement-until-clause(perf)) - - >
    (para-cyclo < - para-cyclo + 1;
    get-perf-cond(perform-statement-until-clause(perf)));
  defined?(perform-statement-varying-clause(perf)) - - >
    (para-cyclo < - para-cyclo + 1;
    (defined?(perform-object-until-clause
          (perform-statement-varying-clause(perf))) - - >
    get-perf-cond(perform-object-until-clause
            (perform-statement-varying-clause(perf)))))
```

% The following function calls another function that process the conditions of
% the until portion of the perform statement

function get-perf-cond(uclause: perform-until-clause) =
         count-perf-cond(perform-object-condition-expression(uclause))

% The following function checks to see if the conditons of the perform until
% are compound, if so it increases the cyclomatic complexity with each
% compound conjunction

function count-perf-cond(exp: condition-expression) =
     (enumerate e over set-to-seq(descendants(exp)) do
     (or-condition(e)) AND NOT
     (relation-condition(e)) AND NOT
     (simple-condition(e)) AND NOT
     (not-condition(e)) - - > (para-cyclo < - para-cyclo + 1))

% The following function processes an if statement. It counts all nested if statements
% and compound conditions of each if statement which increases the overall cyclomatic
% complexity of the statement by one. It also checks any nested perform statements to
% see if they are loops

function do-if-cyclo(seqnodes: seq(statement)) =
     (enumerate s over seqnodes do
     if-statement(s) - - > (para-cyclo < - para-cyclo + 1);
     (or-condition(s)) AND NOT
     (relation-condition(s)) AND NOT
     (simple-condition(s)) AND NOT
     (not-condition(s)) - - > (para-cyclo < - para-cyclo + 1);
     perform-statement(s) - - > do-perf-cyclo(s))

% This function checks any read or write statements to see if they contribute to
% the cyclomatic complexity. Read or Write statements may include a looping
% condidition which would add to the cyclomatic complexity

function do-read-write-cyclo(state: statement) =
   para-cyclo < - para-cyclo + 1;
   defined?(proc-div-obj-on-condition-clause(state)) - - >
      do-statements(on-condition-clause-statement-sequence
                  (proc-div-obj-on-condition-clause(state)));
   defined?(proc-div-obj-not-on-condition-clause(state)) - - >
      do-statements(on-condition-clause-statement-sequence
               (not-clause-on-condition-clause
                  (proc-div-obj-not-on-condition-clause(state))))

% This function checks any search statements to see if they contribute to
% the cyclomatic complexity. Search statements may include a looping
% condidition which would add to the cyclomatic complexity

function do-search-cyclo(state: statement) =
    para-cyclo < - para-cyclo + 1;
    defined?(proc-div-obj-on-condition-clause(state)) - - >
        do-statements(on-condition-clause-statement-sequence
                    (proc-div-obj-on-condition-clause(state)));
    defined?(search-statement-when-clause-sequence(state)) - - >
      (enumerate w over search-statement-when-clause-sequence(state) do
        (para-cyclo < - para-cyclo + 1;
         do-statements(search-when-clause-statement-sequence(w));
         (enumerate cond over
                set-to-seq(descendants
                        (search-when-clause-condition-expression(w))) do
        (or-condition(cond)) AND NOT
        (relation-condition(cond)) AND NOT
        (simple-condition(cond)) AND NOT
        (not-condition(cond)) - - > para-cyclo < - para-cyclo + 1)))

% The following function processes a case statement. Each case alternative increases
% the cyclomatic complexity of the structure by one. It will also check to see if
% any of the alternatives contain perform statements that contribute to the overall
% cyclomatic complexity.

function do-case-cyclo(seqnodes: seq(object)) =
    (enumerate s over seqnodes do
      evaluate-case(s) - - > para-cyclo < - para-cyclo + 1;
      perform-statement(s) - - > do-perf-cyclo(s);
      if-statement(s) - - > do-if-cyclo(set-to-seq(descendants(s))))

% This function checks any return statements to see if they contribute to
% the cyclomatic complexity. Return statements may include a looping
% condidition which would add to the cyclomatic complexity

function do-return-cyclo(state: statement) =
    defined?(proc-div-obj-on-condition-clause(state)) - - >
      do-statements(on-condition-clause-statement-sequence
                  (proc-div-obj-on-condition-clause(state)));
    defined?(proc-div-obj-not-on-condition-clause(state)) - - >
      do-statements(on-condition-clause-statement-sequence
                    (not-clause-on-condition-clause
                      (proc-div-obj-not-on-condition-clause(state))))

%%
%
% THIS SECTION OF CODE COMPUTES MAXIMUM NESTING LEVEL OF THE MODULE
%
%%

% The following function takes the kid of an if-statement and filters out only
% the kids that are also if-statements. It then passes this to another function
% for additonal nesting processing

```
function check-nesting(stmt: statement) =
     seq-ifs <- filter(lambda (obj: object) If-statement(obj),
               set-to-seq(Kids(stmt)));
     check-level(seq-ifs)
```

% The following function takes the kids of an if statement and recursively gets
% their kids. Each time an if-statement has kids that are also if-statement,
% it increases the nesting level by one

```
function check-level(seq-ifs: seq(if-statement)) =
     temp-seq <- [] ;
     size(seq-ifs) > 0  - - > (nest-lvl <- nest-lvl + 1;
                    (enumerate s over seq-ifs do
                     (enumerate k over filter(lambda (obj: object)
                                 If-statement(obj),
                                 set-to-seq(Kids(s))) do
                        temp-seq <- append(temp-seq, k)));
                    check-level(temp-seq))
```

% This function checks the maximum nesting level in a paragraph. It will check
% and see if the current nested statement being checked
% has a higher level the current max level statement

```
function check-max-nesting ( )  =
     nest-lvl > para-lvl - - > para-lvl <- nest-lvl;
     nest-lvl > max-nest-lvl - - >
               (max-nest-para-names <- [] ;
                max-nest-lvl <- nest-lvl;
                max-nest-para-names <- append(max-nest-para-names,
                                 para-name));
     nest-lvl = max-nest-lvl AND
          para-name ~in max-nest-para-names - - >
               max-nest-para-names <- append(max-nest-para-names,
                                 para-name)
```

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%
%  THIS SECTION COMPUTES HENRY AND KAFURA'S INFORMATION FLOW METRIC
%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%


% The following function checks the whole program to see how many
% other paragraphs call the current paragraph.  IT specifically looks for
% any PERFORM statements to the current paragraph.  This is used
% for the INformation Flow Metric

function check-for-calls-to ( )  =
  (enumerate perf over filter(lambda (obj: object) perform-statement(obj),
    set-to-seq(descendants(proc-div))) do
      (count-calls(identifier-name(procedure-ref-name
              (perform-statement-procedure-name(perf))));
            defined?(perform-statement-thru-procedure-name(perf)) - - >
              count-calls(identifier-name(procedure-ref-name
                    (perform-statement-thru-procedure-name(perf))))))

% The following function is a continuation of the above function, it keeps
% a tally of the number of calls to the current paragraph

function count-calls(pname: symbol) =
    pname = para-struct-name - - >
              para-calls-to-para < - para-calls-to-para + 1

% The following function counts the number of times the current paragraph
% calls other paragraphs/programs.  This is used for the Information Flow
% metric

function count-calls-from(para: paragraph) =
    total-calls-from < - size(filter(lambda (obj: object) perform-statement(obj),
              set-to-seq(descendants(para))))
            + size(filter(lambda (obj: object) call-statement(obj),
              set-to-seq(descendants(para))))

% The following function is the driver to get information that will
% be used to compute the INformation flow metric

function do-control-flow(state: statement) =
    if-statement(state) - - > do-control-flow-if(state);
    evaluate-statement(state) - - > do-control-flow-evaluate(state);
    do-control-flow-more(state)
```

% The following function is a contiuation of the above function
% it also gets information that will
% be used to compute the INformation flow metric

function do-control-flow-more(state: statement) =
    call-statement(state) - - > do-control-flow-call(state);
    add-statement(state) - - > do-control-flow-add(state);
    subtract-statement(state) - - > do-control-flow-subtract(state);
    compute-statement(state) - - > do-control-flow-compute(state);
    accept-statement(state) - - > do-control-flow-accept(state);
    divide-statement(state) - - > do-control-flow-divide(state);
    multiply-statement(state) - - > do-control-flow-multiply(state);
    move-statement(state) - - > do-control-flow-move(state);
    set-statement(state) - - > do-control-flow-set(state);
    open-statement(state) - - > do-control-flow-open(state);
    close-statement(state) - - > do-control-flow-close(state);
    search-statement(state) - - > do-control-flow-search(state);
    initialize-statement(state) - - > do-control-flow-initialize(state);
    ((write-statement(state)) OR
    (read-statement(state))) - - > do-control-flow-read-write(state);
    sort-statement(state) - - > do-control-flow-sort(state);
    display-statement(state) - - > do-control-flow-display(state);
    perform-statement(state) - - > do-control-flow-perform(state);
    inspect-statement(state) - - > do-control-flow-inspect(state)

% The following function is used to gather info flow for
% an "inspect" statement

function do-control-flow-inspect(state: statement) =
  (enumerate insp over filter(lambda (obj: object) variable(obj),
      set-to-seq(descendants(state))) do
    check-the-in-seq(variable-name(insp)))

% The following function is used to gather info flow for
% a "display" statement

function do-control-flow-display(state: statement) =
    (enumerate v over
      filter(lambda (obj: object) variable(obj),
        set-to-seq(descendants(state))) do
        check-the-in-seq(variable-name(v)))

```
% The following function is used to gather info flow for
% a "perform" statement

function do-control-flow-perform(state: statement) =
    defined?(perform-statement-varying-clause(state)) - ->
      ((enumerate v-var over filter(lambda (obj: object) variable(obj),
              set-to-seq(kids(perform-statement-varying-clause(state)))) do
            check-the-out-seq(variable-name(v-var)));
       defined?(perform-object-until-clause
            (perform-statement-varying-clause(state))) - ->
        (enumerate uv-var over filter(lambda (obj: object) variable(obj),
          set-to-seq(descendants(perform-object-until-clause
                  (perform-statement-varying-clause(state))))) do
            check-the-in-seq(variable-name(uv-var))));
    defined?(perform-statement-until-clause(state)) - ->
      (enumerate u-var over filter(lambda (obj: object) variable(obj),
          set-to-seq(descendants(perform-statement-until-clause(state)))) do
            check-the-in-seq(variable-name(u-var)))


% The following function is used to gather info flow for
% a "set" statement

function do-control-flow-set(state: statement) =
    (enumerate s over filter(lambda (obj: object) variable(obj),
        set-to-seq(descendants(state))) do
          check-the-out-seq(variable-name(s)))


% The following function is used to gather information flow information
% from a call statement

function do-control-flow-call(state: statement) =
    defined?(call-statement-call-parameter-sequence(state)) - ->
      ((enumerate c over call-statement-call-parameter-sequence(state) do
        (enumerate v over filter(lambda (obj: object) variable(obj),
                set-to-seq(descendants(c))) do
                  check-the-in-seq(variable-name(v)))))

% The following function is used to gather information flow information
% from a add statement

function do-control-flow-add(state: statement) =
    (enumerate asdi over add-statement-data-item-sequence(state) do
     (enumerate add-this over filter(lambda (obj: object) variable(obj),
        set-to-seq(descendants(asdi))) do
          check-the-in-seq(variable-name(add-this))));
```

```
        (enumerate asav over add-statement-arithmetic-variable-sequence(state) do
        (enumerate add-to over filter(lambda (obj: object) variable(obj),
           set-to-seq(descendants(asav))) do
              check-the-out-seq(variable-name(add-to))))
```

% The following function is used to gather information flow information
% from a subtract statement

```
function do-control-flow-subtract(state: statement) =
    (enumerate ssdi over subtract-statement-data-item-sequence(state) do
    (enumerate sub-this over filter(lambda (obj: object) variable(obj),
       set-to-seq(descendants(ssdi))) do
          check-the-in-seq(variable-name(sub-this))));
    (enumerate ssav over subtract-statement-arithmetic-variable-sequence(state) do
    (enumerate sub-from over filter(lambda (obj: object) variable(obj),
       set-to-seq(descendants(ssav))) do
          check-the-out-seq(variable-name(sub-from))))
```

% The following function is used to gather information flow information
% from an if statement

```
function do-control-flow-if(state:statement) =
    (enumerate s over
      (filter(lambda (obj: object) if-statement(obj),
      set-to-seq(descendants(state)))) do
         (enumerate i over filter(lambda (obj: object) variable(obj),
            set-to-seq(descendants(if-statement-condition-expression(s)))) do
               check-the-in-seq(variable-name(i))));
    (enumerate st over set-to-seq(descendants(state)) do
      do-control-flow-more(st))
```

% The following function is used to gather information flow information
% from an evaluate statement

```
function do-control-flow-evaluate(state:statement) =
    (enumerate eval over
      (filter(lambda (obj: object) variable(obj),
      set-to-seq(descendants(evaluate-statement-expression-1(state))))) do
         check-the-in-seq(variable-name(eval)));
    (enumerate e-stmt over set-to-seq(descendants(state)) do
       do-control-flow-more(e-stmt))
```

% The following function is used to gather information flow information
% from a move statement

```
function do-control-flow-move(state: statement) =
    (enumerate mov over filter(lambda (obj: object) variable(obj),
        set-to-seq(descendants(move-statement-data-item(state)))) do
            check-the-in-seq(variable-name(mov)));
    (enumerate var1 over move-statement-variable-sequence(state) do
            check-the-out-seq(variable-name(var1)))
```

% The following function is used to gather information flow information
% from a compute statement

```
function do-control-flow-compute(state: statement) =
    (enumerate com over filter(lambda (obj: object) variable(obj),
        set-to-seq(descendants(compute-statement-arithmetic-expression(state)))) do
            check-the-in-seq(variable-name(com)));
    (enumerate csav over compute-statement-arithmetic-variable-sequence(state) do
    (enumerate comp-result over filter(lambda (obj: object) variable(obj),
        set-to-seq(descendants(csav))) do
            check-the-out-seq(variable-name(comp-result))))
```

% The following function is used to gather info flow for
% a "search" statement

```
function do-control-flow-search(state: statement) =
    check-the-in-seq(variable-name(search-statement-variable(state)));
    defined?(search-statement-when-clause-sequence(state)) - - >
    (enumerate whn over search-statement-when-clause-sequence(state) do
        (enumerate sq over search-when-clause-statement-sequence(whn) do
        do-control-flow(sq));
        (enumerate cond over filter(lambda (obj: object) variable(obj),
        set-to-seq(descendants(search-when-clause-condition-expression(whn)))) do
        check-the-in-seq(variable-name(cond))));
    defined?(proc-div-obj-on-condition-clause(state)) - - >
    (enumerate sts over on-condition-clause-statement-sequence
                (proc-div-obj-on-condition-clause(state)) do
        do-control-flow(sts))
```

% The following function is used to gather info flow for
% a "read" or "write" statement

```
function do-control-flow-read-write(state: statement) =
    read-statement(state) - - > (check-the-in-seq(read-statement-name(state));
                (defined?(read-statement-read-record(state)) - - >
                check-the-out-seq
```

```
                              (variable-name
                               (read-record-variable
                                (read-statement-read-record(state))))));
        write-statement(state) - - > (check-the-out-seq
                               (variable-name
                                (write-statement-name(state)));
                         (defined?(write-statement-from-clause(state)) - - >
                              check-the-in-seq(variable-name
                                     (write-from-clause-variable
                                      (write-statement-from-clause
                                       (state))))));
        defined?(proc-div-obj-on-condition-clause(state)) - - >
          (enumerate on-c over (on-condition-clause-statement-sequence
                     (proc-div-obj-on-condition-clause(state))) do
               do-control-flow(on-c));
        defined?(proc-div-obj-not-on-condition-clause(state)) - - >
          (enumerate not-c over (on-condition-clause-statement-sequence
                     (not-clause-on-condition-clause
                          (proc-div-obj-not-on-condition-clause(state)))) do
               do-control-flow(not-c))
```

% The following function is used to gather info flow for
% a "return" statement

```
function do-control-flow-return(state: statement) =
     check-the-in-seq(return-statement-name(state));
     defined?(proc-div-obj-on-condition-clause(state)) - - >
       (enumerate on-r over on-condition-clause-statement-sequence
                     (proc-div-obj-on-condition-clause(state)) do
          do-control-flow(on-r));
     defined?(proc-div-obj-not-on-condition-clause(state)) - - >
       (enumerate non-r over on-condition-clause-statement-sequence
                     (not-clause-on-condition-clause
                          (proc-div-obj-not-on-condition-clause(state))) do
          do-control-flow(non-r))
```

% The following function is used to gather info flow for
% a "sort" statement

```
function do-control-flow-sort(state: statement) =
   check-the-in-seq(sort-statement-name(state));
   defined?(sort-statement-on-clause-sequence(state)) - - >
     (enumerate ocs over sort-statement-on-clause-sequence(state) do
       (enumerate s-var over filter(lambda (obj: object) variable(obj),
            set-to-seq(descendants(ocs))) do
              check-the-in-seq(variable-name(s-var))));
   defined?(sort-statement-input-clause(state)) - - >
```

```
          (enumerate inp over filter(lambda (obj: object) identifier-ref(obj),
              set-to-seq(descendants(sort-statement-input-clause(state)))) do
            check-the-in-seq(inp));
      defined?(sort-statement-output-clause(state)) - - >
          (enumerate op over filter(lambda (obj: object) identifier-ref(obj),
              set-to-seq(descendants(sort-statement-output-clause(state)))) do
            check-the-out-seq(op))
```

% The following function is used to gather info flow for
% an "initialize" statement

```
function do-control-flow-initialize(state: statement) =
    (enumerate iv over filter(lambda (obj: object) identifier-ref(obj),
        set-to-seq(descendants(state))) do
          check-the-out-seq(iv))
```

% The following function is used to gather information flow information
% from an accept statement

```
function do-control-flow-accept(state: statement) =
    defined?(accept-statement-from-name(state)) - - >
      (enumerate ac over filter(lambda (obj: object) variable(obj),
          set-to-seq(descendants(accept-statement-from-name(state)))) do
              check-the-in-seq(variable-name(ac)));
    check-the-out-seq(variable-name(accept-statement-variable(state)))
```

```
function do-control-flow-open(state: statement) =
    (enumerate o over filter(lambda (obj: object) identifier-ref(obj),
        set-to-seq(descendants(state))) do
            check-the-in-seq(o))
```

% The following function is used to gather info flow for
% a "close" statement

```
function do-control-flow-close(state: statement) =
    (enumerate c over filter(lambda (obj: object) identifier-ref(obj),
        set-to-seq(descendants(state))) do
            check-the-in-seq(c))
```

% The following function is used to gather information flow information
% from a divide statement

```
function do-control-flow-divide(state: statement) =
    defined?(divide-statement-data-item(state)) - - >
      (enumerate dvd over filter(lambda (obj: object) variable(obj),
        set-to-seq(descendants(divide-statement-data-item(state)))) do
```

```
                check-the-in-seq(variable-name(dvd)));
        defined?(divide-statement-data-item-1(state)) - - >
         (enumerate dvd over filter(lambda (obj: object) variable(obj),
           set-to-seq(descendants(divide-statement-data-item-1(state)))) do
                check-the-in-seq(variable-name(dvd)));
        defined?(divide-statement-data-item-2(state)) - - >
         (enumerate dvd over filter(lambda (obj: object) variable(obj),
           set-to-seq(descendants(divide-statement-data-item-2(state)))) do
                check-the-in-seq(variable-name(dvd)));
        (enumerate dsav over divide-statement-arithmetic-variable-sequence(state) do
         (enumerate div-result over filter(lambda (obj: object) variable(obj),
           set-to-seq(descendants(dsav))) do
                check-the-out-seq(variable-name(div-result))))
```

% The following function is used to gather information flow information
% from a multiply statement

```
function do-control-flow-multiply(state: statement) =
    defined?(multiply-statement-data-item(state)) - - >
     (enumerate mult over filter(lambda (obj: object) variable(obj),
       set-to-seq(descendants(multiply-statement-data-item(state)))) do
            check-the-in-seq(variable-name(mult)));
    defined?(multiply-statement-data-item-1(state)) - - >
     (enumerate mult over filter(lambda (obj: object) variable(obj),
       set-to-seq(descendants(multiply-statement-data-item-1(state)))) do
            check-the-in-seq(variable-name(mult)));
    defined?(multiply-statement-data-item-2(state)) - - >
     (enumerate mult over filter(lambda (obj: object) variable(obj),
       set-to-seq(descendants(multiply-statement-data-item-2(state)))) do
            check-the-in-seq(variable-name(mult)));
    (enumerate msav over multiply-statement-arithmetic-variable-sequence(state) do
     (enumerate mult-result over filter(lambda (obj: object) variable(obj),
       set-to-seq(descendants(msav))) do
            check-the-out-seq(variable-name(mult-result))))
```

% The following function is used to check the used variables in a paragraph
% it uses a sequence to put the variables in. A variable is only added to
% the sequence if it is not already in the sequence. This prevents counting
% a variable more than once if it appears several times in the paragraph

```
function check-the-in-seq(var1: identifier-ref) =
    in-term-count < - 0;
 (enumerate in-var over seq-in-var do
     (term-equal?(var1, in-var) - - > in-term-count < - 1));
     in-term-count = 0 - - > seq-in-var < - append(seq-in-var, var1)
```

% The following function is used to check the updated variables in a paragraph

% it uses a sequence to put the variables in. A variable is only added to
% the sequence if it is not already in the sequence. This prevents counting
% a variable more than once if it appears several times in the paragraph

```
function check-the-out-seq(var1: identifier-ref) =
      out-term-count < - 0;
      (enumerate out-var over seq-out-var do
        (term-equal?(var1, out-var) - - > out-term-count < - 1));
      out-term-count = 0 - - > seq-out-var < - append(seq-out-var, var1)
```

```
!! in-package("RCBU")
!! in-grammar('user)

% host-driver.re is the driver program that launches the code that loads and analyzes all four versions
% of the cobol source code
% 08/20/97

var seq-file: seq(cobol-object) = []
var sub-name: string = []

function go-host ( ) =
 go-host-base ( ) ;
 go-host-oct ( ) ;
 go-host-jan ( ) ;
 go-host-mar ( ) ;
 go-host-apr ( ) ;
 NIL
```

```
!! in-package("RCBU")
!! in-grammar('user)

% host-driver-base.re is the driver program that loads and analzyes the files in
% the baseline release of the software
% 08/20/97

function go-host-base ( ) =
 seq-file <- [];
 go-over-base ( ) ;
 dribble("host-bo.txt");
 sub-name <- "OVER";
 domore ( ) ;
 dribble ( ) ;
 seq-file <- [];
 go-crqs-base ( ) ;
 dribble("host-bc.txt");
 sub-name <- "CRQS";
 domore ( ) ;
 dribble ( ) ;
 seq-file <- [];
 go-trais-base ( ) ;
 dribble("host-bt.txt");
 sub-name <- "TRAIS";
 domore ( ) ;
 dribble ( ) ;
 seq-file <- [];
 go-update-base ( ) ;
 dribble("host-bu.txt");
 sub-name <- "UPDATE";
 domore ( ) ;
 dribble ( ) ;
 seq-file <- [];
 go-maca-base ( ) ;
 dribble("host-bm.txt");
 sub-name <- "MACA";
 domore ( ) ;
 dribble ( ) ;
 NIL
```

```
!! in-package("RCBU")
!! in-grammar('user)

% host-driver-oct.re is the driver program that loads and analzyes the files modified
% or created for the october release of the software
% 08/20/97

function go-host-oct ( )  =
 seq-file <- [];
 go-trais-oct ( );
 dribble("host-ot.txt");
 sub-name <- "TRAIS";
 domore ( );
 dribble ( );          ·
 seq-file <- [];
 go-update-oct ( );
 dribble("host-ou.txt");
 sub-name <- "UPDATE";
 domore ( );
 dribble ( );
 NIL
```

```
!! in-package("RCBU")
!! in-grammar('user)

% host-driver-jan.re %  is the driver program that loads and analzyes the files modified
% or created for the january release of the software
% 08/20/97

function go-host-jan ( )  =
 seq-file <-  [ ] ;
 go-trais-jan ( ) ;
 dribble("host-jt.txt");
 sub-name <-  "TRAIS";
 domore ( ) ;
 dribble ( ) ;
 seq-file <-  [ ] ;
 go-update-jan ( ) ;
 dribble("host-ju.txt");
 sub-name <-  "UPDATE";
 domore ( ) ;
 dribble ( ) ;
 NIL
```

```
!! in-package("RCBU")
!! in-grammar('user)

% host-driver-apr.re is the driver program that loads and analzyes the files modified
% or created for the april release of the software
% 08/20/97

function go-host-apr ( ) =
 seq-file <- [];
 go-maca-apr ( );
 dribble("host-am.txt");
 sub-name <- "MACA";
 domore ( );
 dribble ( );
 seq-file <- [];
 go-update-apr ( );
 dribble("host-au.txt");
 sub-name <- "UPDATE";
 domore ( );
 dribble ( );
 seq-file <- [];
 go-trais-apr ( );
 dribble("host-at.txt");
 sub-name <- "TRAIS";
 domore ( );
 dribble ( );
 seq-file <- [];
 go-crqs-apr ( );
 dribble("host-ac.txt");
 sub-name <- "CRQS";
 domore ( );
 dribble ( );
 NIL
```

```
!! in-package("RCBU")
!! in-grammar('user)

% load-crqs-base.re - tool for loading baseline cobol programs
% for the CRQS subsystem
% 08/20/97

function go-crqs-base ( )  =
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/crqs/baseline/lbaauwqs.u"));
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/crqs/baseline/lbablwqs.u"));
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/crqs/baseline/lbacrwqs.u"));
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/crqs/baseline/lbamjwqs.u"));
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/crqs/baseline/lbamnwqs.u"));
NIL
```

```
!! in-package("RCBU")
!! in-grammar('user)

% load-maca-base.re - tool for loading the baseline cobol programs
% for the maca subsystem
% 08/20/97

function go-maca-base ( ) =
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/maca/baseline/lyg12wqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/maca/baseline/lyg43wqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/maca/baseline/lyg44wqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/maca/baseline/lygadwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/maca/baseline/lygaowqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/maca/baseline/lygbtwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/maca/baseline/lygccwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/maca/baseline/lygdgwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/maca/baseline/lygedwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/maca/baseline/lygetwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/maca/baseline/lygfpwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/maca/baseline/lyginwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/maca/baseline/lygmawqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/maca/baseline/lygmowqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/maca/baseline/lygotwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/maca/baseline/lygrnwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/maca/baseline/lygs4wqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/maca/baseline/lygs5wqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/maca/baseline/lygx2wqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/maca/baseline/lygx3wqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/maca/baseline/lygx4wqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/maca/baseline/lygx5wqs.u"));
 NIL
```

```
!! in-package("RCBU")
!! in-grammar('user)

% load-over-base.re - tool for loading baseline cobol programs
% for the over subsystem
% 08/20/97


function go-over-base ( )  =
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/over/baseline/lygoswqs.u"));
NIL
```

```
!! in-package("RCBU")
!! in-grammar('user)

% load-trais-base.re - tool for loading baseline cobol programs
% for the trais subsystem
% 08/20/97

function go-trais-base ( )  =
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxa0wqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxa1wqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxadwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxb0wqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxbawqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxbbwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxbcwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxbxwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxi0wqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxi1wqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxi2wqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxi3wqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxi4wqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxi5wqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxi6wqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxi7wqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxi8wqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxi9wqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxiawqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxibwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxicwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxidwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxl0wqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxl1wqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxl2wqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxl4wqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxl5wqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxl7wqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxl9wqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxlbwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxldwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxlewqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxlfwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxlgwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxlhwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxlmwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxlnwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxlowqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxlpwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxlzwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxm1wqs.u"));
```

```
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxmawqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxmbwqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxmdwqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxmewqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxmfwqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxmhwqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxmiwqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxmjwqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxmpwqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxmqwqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxmrwqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxmswqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxmtwqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxp4wqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxpawqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxpbwqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxpcwqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxpdwqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxpewqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxpfwqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxphwqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxpjwqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxpkwqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxplwqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxpmwqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxpnwqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxppwqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxpqwqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxprwqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxpvwqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxpwwqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxpywqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxpzwqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxr0wqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxr1wqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxr2wqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxr3wqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxr5wqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxr6wqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxr7wqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxrawqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxrdwqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxrewqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxrgwqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxriwqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxrkwqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxrmwqs.u"));
seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxrpwqs.u"));
```

```
seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxrqwqs.u"));
seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxrrwqs.u"));
seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxrswqs.u"));
seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxruwqs.u"));
seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxrwwqs.u"));
seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxrzwqs.u"));
seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxs1wqs.u"));
seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxs2wqs.u"));
seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxs3wqs.u"));
seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxt0wqs.u"));
seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxt1wqs.u"));
seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxt2wqs.u"));
seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxt3wqs.u"));
seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxtywqs.u"));
seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxtzwqs.u"));
seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxu1wqs.u"));
seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxu3wqs.u"));
seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxu9wqs.u"));
seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxubwqs.u"));
seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxuewqs.u"));
seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxufwqs.u"));
seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxugwqs.u"));
seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxuhwqs.u"));
seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxupwqs.u"));
seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/lnxuxwqs.u"));
seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/ltpfowqs.u"));
NIL
```

```
!! in-package("RCBU")
!! in-grammar('user)

% load-update-base.re - tool for loading baseline cobol programs
% for the update subsystem
% 08/20/97

var seq-file: seq(cobol-object) = []

function go-update-base () =
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/lyg15wqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/lygabwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/lygalwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/lygbrwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/lygcdwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/lygcpwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/lygctwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/lygdawqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/lygdcwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/lygddwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/lygdmwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/lygdrwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/lygfbwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/lyglfwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/lygobwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/lygorwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/lygpawqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/lygpcwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/lygpdwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/lygpfwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/lygptwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/lygtfwqs.u"));
 seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/lygucwqs.u"));
 NIL
```

```
!! in-package("RCBU")
!! in-grammar('user)

% load-trais-oct.re - tool for loading the oct release of cobol programs
% for the trais subsystem
% 08/20/97

function go-trais-oct ( )  =
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/15oct96/lnxiewqs.u"));
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/15oct96/lnxd0wqs.u"));
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/15oct96/lnxd1wqs.u"));
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/15oct96/lnxd2wqs.u"));
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/15oct96/lnxd3wqs.u"));
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/15oct96/lnxd4wqs.u"));
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/15oct96/lnxd5wqs.u"));
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/15oct96/lnxd7wqs.u"));
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/15oct96/lnxr7wqs.u"));
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/15oct96/lnxicwqs.u"));
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/15oct96/lnxidwqs.u"));
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/15oct96/lnxmhwqs.u"));
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/15oct96/lnxpmwqs.u"));
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/15oct96/lnxrgwqs.u"));
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/15oct96/lnxpywqs.u"));
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/15oct96/lnxrpwqs.u"));
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/15oct96/lnxu1wqs.u"));
 NIL
```

```
!! in-package("RCBU")
!! in-grammar('user)

% load-update-oct.re - tool for loading the oct release of cobol programs
% for the update subsystem
% 08/20/97

function go-update-oct ( )  =
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/15oct96/lyg15wqs.u"));
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/15oct96/lygabwqs.u"));
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/15oct96/lygalwqs.u"));
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/15oct96/lygdmwqs.u"));
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/15oct96/lyglfwqs.u"));
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/15oct96/lygobwqs.u"));
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/15oct96/lygorwqs.u"));
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/15oct96/lygpfwqs.u"));
 NIL
```

```
!! in-package("RCBU")
!! in-grammar('user)

% load-trais-jan.re - tool for loading the jan release of cobol programs
% for the trais subsystem
% 08/20/97

function go-trais-jan ( )  =
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/15jan97/lnxmbwqs.u"));
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/15jan97/lnxifwqs.u"));
 NIL
```

```
!! in-package("RCBU")
!! in-grammar('user)

% load-update-jan.re - tool for loading the jan release of cobol programs
% for the update subsystem
% 08/20/97

function go-update-jan ( )  =
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/15jan97/lygdrwqs.u"));
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/15jan97/lygctwqs.u"));
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/15jan97/lygucwqs.u"));
 NIL
```

A-36

```
!! in-package("RCBU")
!! in-grammar('user)

% load-crqs-apr.re - tool for loading apr release of cobol programs
% for the CRQS subsystem
% 08/20/97

function go-crqs-apr ( ) =
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/crqs/baseline/30apr97/lbamnwqs.u"));
NIL
```

```
!! in-package("RCBU")
!! in-grammar('user)

% load-maca-apr.re - tool for loading the apr release cobol programs
% for the maca subsystem
% 08/20/97

function go-maca-apr ( )  =
   seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/maca/baseline/30apr97/lygadwqs.u"));
   seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/maca/baseline/30apr97/lygbtwqs.u"));
   seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/maca/baseline/30apr97/lygedwqs.u"));
   seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/maca/baseline/30apr97/lygotwqs.u"));
   seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/maca/baseline/30apr97/lygrnwqs.u"));
NIL
```

```
!! in-package("RCBU")
!! in-grammar('user)

% load-trais-apr.re - tool for loading the apr release of cobol programs
% for the trais subsystem
% 08/20/97

function go-trais-apr ( )  =
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/30apr97/lnxm1wqs.u"));
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/30apr97/lnxmpwqs.u"));
 seq-file < - append(seq-file, parse-cobol-file("~rboone/HOST/trais/baseline/30apr97/lnxrpwqs.u"));
 NIL
```

```
!! in-package("RCBU")
!! in-grammar('user)

% load-update-apr.re - tool for loading apr release of cobol programs
% for the update subsystem
% 08/20/97

function go-update-apr ( ) =
  seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/30apr97/lygalwqs.u"));
  seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/30apr97/lygctwqs.u"));
  seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/30apr97/lygucwqs.u"));
  seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/30apr97/lygmpwqs.u"));
  seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/30apr97/lygprwqs.u"));
  seq-file <- append(seq-file, parse-cobol-file("~rboone/HOST/update/baseline/30apr97/lygpmwqs.u"));
NIL
```

Appendix B

Baseline Source Code Measures

Table of Contents

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts Baseline	October	January	April	McCabe's CC Baseline	October	January	April	Max Nest Baseline	October	January	April	Information Flow Baseline	October	January	April
NXA0WQ	000_MAIN_DRIVER	13				7				2				31213			
NXA0WQ	000_STOP_RUN	4				1				1				64			
NXA0WQ	100_HSKP	71				15				2				18684999			
NXA0WQ	100_EXIT	1				1				1				0			
NXA0WQ	110_LOAD_DEST_TABLE	16				7				2				63504			
NXA0WQ	110_EXIT	1				1				1				0			
NXA0WQ	200_SEND_RCDS	25				12				2				562500			
NXA0WQ	200_EXIT	1				1				1				0			
NXA0WQ	700_RBTCHO_CALL	8				4				2				8192			
NXA0WQ	700_RBTCHO_CALL_EXIT	1				1				1				0			
NXA0WQ	700_SEND_HDRS	64				24				3				20070400			
NXA0WQ	700_SEND_HDRS_EXIT	1				1				1				0			
NXA0WQ	710_FORMAT_RIS_AREA	7				3				2				4032			
NXA0WQ	710_EXIT	1				1				1				0			
NXA0WQ	720_SEND_PLA_RECS	17				6				2				108800			
NXA0WQ	720_EXIT	1				1				1				0			
NXA0WQ	700_READ_INPUT_FILE	6				5				2				216			
NXA0WQ	700_READ_EXIT	1				1				1				0			
NXA0WQ	700_CHECK_RBTCHO_RZLT	8				3				2				10368			
NXA0WQ	700_CHECK_RBTCHO_RZLT_EXIT	1				1				1				0			
NXA0WQ	700_RBTCHO_LOOP	5				1				1				5445			
NXA0WQ	700_RBTCHO_LOOP_EXIT	1				1				1				0			
NXA0WQ	700_ERROR_DUMP	10				2				2				0			
NXA0WQ	700_ERROR_DUMP_EXIT	1				1				1				0			
NXA1WQ	000_MAIN_DRIVER	11				6				2				14256			
NXA1WQ	000_STOP_RUN	2				1				1				0			
NXA1WQ	100_HSKP	74				7				2				39976650			
NXA1WQ	100_EXIT	1				1				1				0			
NXA1WQ	200_SEND_RCDS	26				6				3				473850			
NXA1WQ	200_EXIT	1				1				1				0			
NXA1WQ	700_STARS_CALL	9				5				2				32400			
NXA1WQ	700_STARS_CALL_EXIT	1				1				1				0			
NXA1WQ	700_HDR_CALL	42				9				2				2183328			
NXA1WQ	700_HDR_CALL_EXIT	1				1				1				0			
NXA1WQ	700_READ_INPUT_FILE	6				4				2				600			
NXA1WQ	700_READ_EXIT	1				1				1				0			
NXA1WQ	700_CHECK_RBTCHO_RZLT	7				2				2				10647			
NXA1WQ	700_CHECK_RBTCHO_RZLT_EXIT	1				1				1				0			
NXA1WQ	700_RBTCHO_LOOP	5				1				1				6480			
NXA1WQ	700_RBTCHO_LOOP_EXIT	1				1				1				0			
NXA1WQ	700_ERROR_DUMP	9				1				1				0			
NXA1WQ	700_ERROR_DUMP_EXIT	1				1				1				0			
NXADWQ	000_DRIVER	4				1				1				0			
NXADWQ	000_EXIT	1				1				1				0			
NXADWQ	100_HSKP	2				1				1				0			
NXADWQ	100_EXIT	1				1				1				0			
NXADWQ	200_READ_DRIVER	5				3				2				180			
NXADWQ	200_EXIT	1				1				1				0			
NXADWQ	210_FIRST_READ	6				3				2				486			
NXADWQ	210_EXIT	1				1				1				0			
NXADWQ	220_READ_REST	9				7				2				32400			
NXADWQ	220_EXIT	1				1				1				0			
NXADWQ	230_PAGE_BREAK	6				5				1				1944			
NXADWQ	230_EXIT	1				1				1				0			
NXADWQ	211_MOVE_INPUT	6				1				1				7350			
NXADWQ	211_EXIT	1				1				1				0			
NXADWQ	212_WRITE_REC	8				3				2				2048			
NXADWQ	212_EXIT	1				1				1				0			
NXADWQ	300_WRAPUP	4				1				1				0			
NXADWQ	300_EXIT	1				1				1				0			
NXB0WQ	000_B0_DRIVER	25				11				3				342225			
NXB0WQ	000_CONTINUE	3				2				2				12			
NXB0WQ	000_STOP_RUN	1				1				1				0			
NXB0WQ	100_HSKP	97				23				2				655720000			
NXB0WQ	100_EXIT	1				1				1				0			
NXB0WQ	110_LOAD_PGM_STA_TABLE	22				9				3				130438			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts Baseline	October	Januaray	April	McCabe's CC Baseline	October	Januaray	April	Max Nest Baseline	October	Januaray	April	Information Flow Baseline	October	Januaray	April
NXB0WQ	110_EXIT	1				1				1				0			
NXB0WQ	120_LOAD_VALID_PORT_TABLE	5				2				1				405			
NXB0WQ	120_EXIT	1				1				1				0			
NXB0WQ	130_DAILY_ONHAND_FILE	46				35				3				2308096			
NXB0WQ	130_MERGE	31				14				3				1697436			
NXB0WQ	130_EXIT	1				1				1				0			
NXB0WQ	131_READ_OH_FILE	9				4				2				20736			
NXB0WQ	131_EXIT	1				1				1				0			
NXB0WQ	140_DAILY_MOVEMENT_FILE	30				16				3				243000			
NXB0WQ	140_MERGE	89				41				3				88822089			
NXB0WQ	140_EXIT	1				1				1				0			
NXB0WQ	141_READ_MV_FILE	10				4				2				51840			
NXB0WQ	141_EXIT	1				1				1				0			
NXB0WQ	142_READ_NEW_GEN_FILE	8				4				2				512			
NXB0WQ	142_EXIT	1				1				1				0			
NXB0WQ	143_READ_WRITE_GEN	12				6				2				4800			
NXB0WQ	143_READ_WRITE_EXIT	1				1				1				0			
NXB0WQ	150_LEAP_YEAR_CHECK	16				6				3				5184			
NXB0WQ	150_EXIT	1				1				1				0			
NXB0WQ	200_PROCESS	21				3				2				97104			
NXB0WQ	200_EXIT	1				1				1				0			
NXB0WQ	210_COMPARISONS	13				17				2				7488			
NXB0WQ	210_EXIT	1				1				1				0			
NXB0WQ	211_CONUS_OUTBOUND	11				8				4				8624			
NXB0WQ	211_EXIT	1				1				1				0			
NXB0WQ	212_CONUS_INBOUND	11				8				4				8624			
NXB0WQ	212_EXIT	1				1				1				0			
NXB0WQ	213_OFFSHORE_TO_OFFSHORE	11				8				4				8624			
NXB0WQ	213_EXIT	1				1				1				0			
NXB0WQ	300_DELETE_OLD_TCN_RECS	19				7				2				112651			
NXB0WQ	300_EXIT	1				1				1				0			
NXB0WQ	310_READ_TO_TEMP	8				4				2				2048			
NXB0WQ	310_EXIT	1				1				1				0			
NXB0WQ	400_DELE_AFTER_3_DAYS	7				4				2				1008			
NXB0WQ	400_EXIT	1				1				1				0			
NXB0WQ	410_READ_TO_TEMP	7				4				2				1008			
NXB0WQ	410_EXIT	1				1				1				0			
NXB0WQ	420_READ_WRITE_GEN	10				4				2				5760			
NXB0WQ	420_EXIT	1				1				1				0			
NXB0WQ	500_WRAPUP	51				4				2				3316275			
NXB0WQ	500_EXIT	1				1				1				0			
NXB0WQ	700_READ	9				4				2				2304			
NXB0WQ	700_READ_EXIT	1				1				1				0			
NXB0WQ	700_WRITE_DETAIL	31				4				2				8447004			
NXB0WQ	700_WRITE_DETAIL_EXIT	1				1				1				0			
NXB0WQ	700_WRITE_HEADINGS	9				9				2				729			
NXB0WQ	700_WRITE_HEADINGS_EXIT	1				1				1				0			
NXB0WQ	700_WRITE_TRAILER	4				4				2				100			
NXB0WQ	700_WRITE_TRAILER_EXIT	1				1				1				0			
NXB0WQ	700_ERROR_RTN	4				1				1				400			
NXB0WQ	700_ERROR_RTN_EXIT	1				1				1				0			
NXB0WQ	700_SEARCH_VALID_PORT_TBL	5				5				2				0			
NXB0WQ	700_SEARCH_EXIT	1				1				1				0			
NXB0WQ	700_READ_TEMP_DELETE	4				3				2				100			
NXB0WQ	700_READ_TEMP_DELETE_EXIT	1				1				1				0			
NXB0WQ	700_READ_WRITE_GEN	38				21				2				493848			
NXB0WQ	700_READ_WRITE_GEN_EXIT	1				1				1				0			
NXBAWQ	000_BA_DRIVER	8				1				1				7200			
NXBAWQ	000_STOP_RUN	1				1				1				0			
NXBAWQ	100_HSKP	18				3				1				3484800			
NXBAWQ	100_EXIT	1				1				1				0			
NXBAWQ	110_LOAD_VALID_PORT_TABLE	6				2				1				1350			
NXBAWQ	110_EXIT	1				1				1				0			
NXBAWQ	120_LOAD_MAI_TABLE	6				2				1				1350			
NXBAWQ	120_EXIT	1				1				1				0			
NXBAWQ	200_PROCESS_OH_FILE	3				3				1				108			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts Baseline	October	Januaray	April	McCabe's CC Baseline	October	Januaray	April	Max Nest Baseline	October	Januaray	April	Information Flow Baseline	October	Januaray	April
NXBAWQ	200_EXIT	1				1				1				0			
NXBAWQ	210_L4_AKF_PROCESS	13				3				2				16848			
NXBAWQ	210_CONTINUE	28				8				2				5057500			
NXBAWQ	210_EXIT	1				1				1				0			
NXBAWQ	220_L5_AKF_PROCESS	32				9				2				4078368			
NXBAWQ	220_EXIT	1				1				1				0			
NXBAWQ	300_WRITE_CONTROL	11				6				1				57024			
NXBAWQ	300_EXIT	1				1				1				0			
NXBAWQ	310_WRITE_PART_II	49				14				3				8850625			
NXBAWQ	310_EXIT	1				1				1				0			
NXBAWQ	320_WRITE_PART_V	47				11				3				8133632			
NXBAWQ	320_EXIT	1				1				1				0			
NXBAWQ	400_WRAPUP	4				1				1				0			
NXBAWQ	400_EXIT	1				1				1				0			
NXBAWQ	700_SEARCH_STN_WT_TABLE	5				4				1				1620			
NXBAWQ	700_SRCH_STN_WT_TABLE_EXIT	1				1				1				0			
NXBAWQ	700_SEARCH_VALID_PORT_TBL	7				5				2				343			
NXBAWQ	700_SEARCH_VALID_PORT_EXIT	1				1				1				0			
NXBAWQ	700_ADD_TO_MAI_TOTALS_B2	29				24				4				234900			
NXBAWQ	700_ADD_TO_MAI_TOTALS_B2_EXIT	1				1				1				0			
NXBAWQ	700_ADD_TO_MAI_TOTALS_B5	29				34				4				319725			
NXBAWQ	700_ADD_TO_MAI_TOTALS_B5_EXIT	1				1				1				0			
NXBAWQ	700_ADD_TO_REPORT_TOTALS	17				31				2				39168			
NXBAWQ	700_ADD_TO_REPORT_TOTALS_EXIT	1				1				1				0			
NXBAWQ	700_FORMAT_MAI_PART	9				3				1				39204			
NXBAWQ	700_FORMAT_MAI_PART_EXIT	1				1				1				0			
NXBAWQ	700_FORMAT_MAI_CONUS_TOTALS	7				1				1				6300			
NXBAWQ	700_FORMAT_MAI_CONUS_EXIT	1				1				1				0			
NXBAWQ	700_B2FORM_MAI_OFFSHORE_TOTALS	7				1				1				6300			
NXBAWQ	700_B2FORM_MAI_OFFSHORE_EXIT	1				1				1				0			
NXBAWQ	700_FORMAT_MAI_OFFSHORE_TOTALS	7				1				1				6300			
NXBAWQ	700_FORMAT_MAI_OFFSHORE_EXIT	1				1				1				0			
NXBAWQ	700_FORMAT_21ST_AF_TOTALS	6				1				1				5400			
NXBAWQ	700_FORMAT_21ST_AF_EXIT	1				1				1				0			
NXBAWQ	700_FORMAT_22ND_AF_TOTALS	6				1				1				5400			
NXBAWQ	700_FORMAT_22ND_AF_EXIT	1				1				1				0			
NXBAWQ	700_FORMAT_GRAND_TOTALS	6				1				1				15000			
NXBAWQ	700_FORMAT_GRAND_TOTL_EXIT	1				1				1				0			
NXBAWQ	700_TRAILER_PART_II	7				2				1				9072			
NXBAWQ	700_TRAILER_PART_II_EXIT	1				1				1				0			
NXBAWQ	700_TRAILER_PART_V	7				2				1				9072			
NXBAWQ	700_TRAILER_PART_V_EXIT	1				1				1				0			
NXBAWQ	700_HEADERS_PART_II	10				6				1				7840			
NXBAWQ	700_HEADERS_PART_II_EXIT	1				1				1				0			
NXBAWQ	700_HEADERS_PART_V	10				6				1				7840			
NXBAWQ	700_HEADERS_PART_V_EXIT	1				1				1				0			
NXBBWQ	000_BB_DRIVER	9				5				1				44100			
NXBBWQ	000_STOP_RUN	1				1				1				0			
NXBBWQ	100_HSKP	33				6				3				21651300			
NXBBWQ	100_EXIT	1				1				1				0			
NXBBWQ	110_LOAD_B0_GENERATION_TABLE	12				8				2				15552			
NXBBWQ	110_EXIT	1				1				1				0			
NXBBWQ	120_LOAD_VALID_PORT_TABLE	6				2				1				1350			
NXBBWQ	120_EXIT	1				1				1				0			
NXBBWQ	200_PREPARE_MVMT	28				16				3				1612800			
NXBBWQ	200_EXIT	1				1				1				0			
NXBBWQ	300_MERGE	32				5				2				663552			
NXBBWQ	300_EXIT	1				1				1				0			
NXBBWQ	310_READ_MV_SUMMARY_FILE	4				2				2				100			
NXBBWQ	310_EXIT	1				1				1				0			
NXBBWQ	320_READ_OH_SUMMARY_FILE	4				2				2				100			
NXBBWQ	320_EXIT	1				1				1				0			
NXBBWQ	400_WRITE_CONTROL	8				8				1				3200			
NXBBWQ	400_EXIT	1				1				1				0			
NXBBWQ	410_WRITE_PART_I_CONUS_OUT	42				10				2				3780000			
NXBBWQ	410_EXIT	1				1				1				0			

Program Name	Paragraph (Procedure) Name	# of Stmts Baseline	October	Januaray	April	McCabe's CC Baseline	October	Januaray	April	Max Nest Baseline	October	Januaray	April	Information Flow Baseline	October	Januaray	April
NXBBWQ	420_WRITE_PART_III_CONUS_IN	53				13				2				8607677			
NXBBWQ	420_EXIT	1				1				1				0			
NXBBWQ	430_WRITE_PART_IV_OFF_SHORE	53				11				2				8607677			
NXBBWQ	430_EXIT	1				1				1				0			
NXBBWQ	500_PREPARE_ON_HAND	25				12				2				950625			
NXBBWQ	500_EXIT	1				1				1				0			
NXBBWQ	600_WRAPUP	4				1				1				0			
NXBBWQ	600_EXIT	1				1				1				0			
NXBBWQ	700_UPDATE_TOTLS_FROM_FILE_FS	10				1				1				29160			
NXBBWQ	700_UPDATE_TOTLS_FROM_FS_EXIT	1				1				1				0			
NXBBWQ	700_ADD_TO_GENERATION_NAF_TOT	20				6				2				180500			
NXBBWQ	700_ADD_TO_GEN_NAF_TOT_EXIT	1				1				1				0			
NXBBWQ	700_ADD_TO_GENERATION_RPT_TOT	20				6				2				200000			
NXBBWQ	700_ADD_TO_GEN_RPT_TOT_EXIT	1				1				1				0			
NXBBWQ	700_FORMAT_DETAIL_LINE	25				6				2				1322500			
NXBBWQ	700_FORMAT_DETAIL_LINE_EXIT	1				1				1				0			
NXBBWQ	700_FORMAT_NAF_TOTAL_LINE	16				3				2				278784			
NXBBWQ	700_FORMAT_NAF_TOTAL_LINE_EXIT	1				1				1				0			
NXBBWQ	700_FORMAT_REPORT_TOTAL_LINE	13				2				2				236925			
NXBBWQ	700_FORMAT_RPT_TOTAL_LINE_EXIT	1				1				1				0			
NXBBWQ	700_SEARCH_VALID_PORT_TBL	4				4				1				0			
NXBBWQ	700_SEARCH_VALID_PORT_EXIT	1				1				1				0			
NXBBWQ	700_READ_MVMT	24				10				2				777600			
NXBBWQ	700_READ_MVMT_EXIT	1				1				1				0			
NXBBWQ	700_READ_ONHD	17				7				2				137700			
NXBBWQ	700_READ_ONHD_EXIT	1				1				1				0			
NXBBWQ	700_PRI_4_INFO_FROM_LB	22				7				3				514998			
NXBBWQ	700_PRI_4_INFO_FROM_LB_EXIT	1				1				1				0			
NXBBWQ	700_READ_PRI_4	2				2				1				8			
NXBBWQ	700_READ_PRI_4_EXIT	1				1				1				0			
NXBBWQ	700_READ_CONUS_PRI_4	2				2				1				8			
NXBBWQ	700_READ_CONUS_PRI_4_EXIT	1				1				1				0			
NXBBWQ	700_READ_INTRA_PRI_4	2				2				1				8			
NXBBWQ	700_READ_INTRA_PRI_4_EXIT	1				1				1				0			
NXBBWQ	700_TRAILER_PART_I	7				2				1				6300			
NXBBWQ	700_TRAILER_PART_I_EXIT	1				1				1				0			
NXBBWQ	700_TRAILER_PART_III	7				2				1				6300			
NXBBWQ	700_TRAILER_PART_III_EXIT	1				1				1				0			
NXBBWQ	700_TRAILER_PART_IV	7				2				1				6300			
NXBBWQ	700_TRAILER_PART_IV_EXIT	1				1				1				0			
NXBBWQ	700_HEADERS_PART_I	10				7				1				4410			
NXBBWQ	700_HEADERS_PART_I_EXIT	1				1				1				0			
NXBBWQ	700_HEADERS_PART_III	10				7				1				4410			
NXBBWQ	700_HEADERS_PART_III_EXIT	1				1				1				0			
NXBBWQ	700_HEADERS_PART_IV	10				7				1				4410			
NXBBWQ	700_HEADERS_PART_IV_EXIT	1				1				1				0			
NXBCWQ	000_BC_DRIVER	7				2				1				8575			
NXBCWQ	000_STOP_RUN	1				1				1				0			
NXBCWQ	100_HSKP	20				3				1				3528000			
NXBCWQ	100_EXIT	1				1				1				0			
NXBCWQ	110_LOAD_VALID_PORT_TABLE	6				2				1				1350			
NXBCWQ	110_EXIT	1				1				1				0			
NXBCWQ	200_L5_SELECT_PROC	39				16				2				3510000			
NXBCWQ	200_EXIT	1				1				1				0			
NXBCWQ	300_WRITE_CONTROL	7				6				1				1575			
NXBCWQ	300_EXIT	1				1				1				0			
NXBCWQ	310_WRITE_SECTION_A	18				8				2				217800			
NXBCWQ	310_EXIT	1				1				1				0			
NXBCWQ	311_FORMAT_AND_WRITE_SECT_A	16				3				2				104976			
NXBCWQ	311_EXIT	1				1				1				0			
NXBCWQ	320_WRITE_SECTION_B	22				9				2				521752			
NXBCWQ	320_EXIT	1				1				1				0			
NXBCWQ	321_FORMAT_AND_WRITE_SECT_B	16				3				2				104976			
NXBCWQ	321_EXIT	1				1				1				0			
NXBCWQ	400_WRAPUP	3				1				1				0			
NXBCWQ	400_EXIT	1				1				1				0			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
NXBCWQ	700_SEARCH_VALID_PORT_TBL	4				4				1				0			
NXBCWQ	700_SEARCH_VALID_PORT_EXIT	1				1				1				0			
NXBCWQ	700_ADD_TO_DETAIL_CNTRS	6				2				2				1536			
NXBCWQ	700_ADD_TO_DETAIL_CNTRS_EXIT	1				1				1				0			
NXBCWQ	700_TRAILER	6				2				1				9600			
NXBCWQ	700_TRAILER_PART_VI_EXIT	1				1				1				0			
NXBCWQ	700_HEADERS	11				7				2				5324			
NXBCWQ	700_HEADERS_EXIT	1				1				1				0			
NXBXWQ	000_DRIVER	2				1				1				0			
NXBXWQ	000_STOP_RUN	1				1				1				0			
NXBXWQ	100_SPAWN_B0	9				1				1				18225			
NXBXWQ	100_EXIT	1				1				1				0			
NXBXWQ	110_CHECK_R_SPAWN_ERR	5				4				2				20			
NXBXWQ	110_EXIT	1				1				1				0			
NXBXWQ	111_RWAIT	7				2				2				9072			
NXBXWQ	111_RWAIT_EXIT	1				1				1				0			
NXI0WQ	000_DRIVER	7				3				2				1008			
NXI0WQ	000_STOP_RUN	1				1				1				0			
NXI0WQ	100_HSKP	22				6				2				1901592			
NXI0WQ	100_HSKP_EXIT	1				1				1				0			
NXI0WQ	110_LOAD_CHNL_TABLE	6				2				1				486			
NXI0WQ	110_EXIT	1				1				1				0			
NXI0WQ	120_SELECT_RECORDS	10				10				2				16000			
NXI0WQ	120_EXIT	1				1				1				0			
NXI0WQ	130_SEARCH_CHNL_TBL	6				3				1				600			
NXI0WQ	130_EXIT	1				1				1				0			
NXI0WQ	200_BUILD_REPORT	28				6				2				1075648			
NXI0WQ	200_EXIT	1				1				1				0			
NXI0WQ	210_EACH_APOD	11				6				2				57024			
NXI0WQ	210_EXIT	1				1				1				0			
NXI0WQ	220_EACH_PRIORITY	36				30				2				3572100			
NXI0WQ	220_EXIT	1				1				1				0			
NXI0WQ	230_PROCESS_LINE	12				5				2				139968			
NXI0WQ	230_EXIT	1				1				1				0			
NXI0WQ	231_COMPUTE	18				4				3				71442			
NXI0WQ	231_EXIT	1				1				1				0			
NXI0WQ	232_WRITE_LINE	27				6				3				3345408			
NXI0WQ	232_EXIT	1				1				1				0			
NXI0WQ	300_WRAP_UP	24				4				2				279936			
NXI0WQ	300_EXIT	1				1				1				0			
NXI0WQ	600_NEXT_PAGE	4				3				2				784			
NXI0WQ	600_EXIT	1				1				1				0			
NXI0WQ	700_WRITE_HEADERS	9				6				2				9216			
NXI0WQ	700_EXIT	1				1				1				0			
LNXI1WQ	000_DRIVER	3				2				1				27			
LNXI1WQ	000_STOP_RUN	1				1				1				0			
LNXI1WQ	100_HSKP	19				5				1				1076236			
LNXI1WQ	100_HSKP_EXIT	1				1				1				0			
LNXI1WQ	110_LOAD_CHNL_TABLE	5				2				1				405			
LNXI1WQ	110_EXIT	1				1				1				0			
LNXI1WQ	120_SELECT_RECORDS	16				11				2				40000			
LNXI1WQ	120_EXIT	1				1				1				0			
LNXI1WQ	130_SEARCH_CHNL_TBL	5				3				1				500			
LNXI1WQ	130_EXIT	1				1				1				0			
LNXI1WQ	200_BUILD_REPORT	49				11				2				12446784			
LNXI1WQ	200_EXIT	1				1				1				0			
LNXI1WQ	210_EACH_CHNL	12				6				2				209088			
LNXI1WQ	210_EXIT	1				1				1				0			
LNXI1WQ	220_EACH_MFST_CHNL	16				8				2				94864			
LNXI1WQ	220_EXIT	1				1				1				0			
LNXI1WQ	230_COMPUTE	6				1				1				29400			
LNXI1WQ	230_EXIT	1				1				1				0			
LNXI1WQ	231_ADD_TOTALS	2				1				1				0			
LNXI1WQ	231_EXIT	1				1				1				0			
LNXI1WQ	232_WRITE_LINE	18				3				2				1843200			
LNXI1WQ	232_EXIT	1				1				1				0			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
LNXI1WQ	233_PERCENTAGES	8				1				1				20000			
LNXI1WQ	233_EXIT	1				1				1				0			
LNXI1WQ	234_WRITE_PRCTS	10				4				1				59290			
LNXI1WQ	234_EXIT	1				1				1				0			
LNXI1WQ	300_WRAP_UP	32				5				1				1952288			
LNXI1WQ	300_EXIT	1				1				1				0			
LNXI1WQ	600_NEXT_PAGE	2				2				1				200			
LNXI1WQ	600_EXIT	1				1				1				0			
LNXI1WQ	700_WRITE_HEADERS	7				5				1				5488			
LNXI1WQ	700_EXIT	1				1				1				0			
NXI2WQ	000_I2_DRIVER	41				9				2				410000			
NXI2WQ	000_STOP_RUN	1				1				1				0			
NXI2WQ	100_HSKP	24				3				1				3538944			
NXI2WQ	100_EXIT	1				1				1				0			
NXI2WQ	110_SELECT_RECORDS	22				9				2				301158			
NXI2WQ	110_EXIT	1				1				1				0			
NXI2WQ	200_OUTBOUND_SHIPMENTS	26				20				2				842400			
NXI2WQ	200_EXIT	1				1				1				0			
NXI2WQ	210_APOE_LOOP	17				10				2				78608			
NXI2WQ	210_EXIT	1				1				1				0			
NXI2WQ	220_COMPUTE_APOE	19				2				1				1076236			
NXI2WQ	220_EXIT	1				1				1				0			
NXI2WQ	230_TOTAL_REC	18				3				1				684450			
NXI2WQ	230_EXIT	1				1				1				0			
NXI2WQ	300_SHIPMENTS_TONS	25				29				2				435600			
NXI2WQ	300_EXIT	1				1				1				0			
NXI2WQ	310_TONS_LOOP	3				1				1				432			
NXI2WQ	310_EXIT	1				1				1				0			
NXI2WQ	320_COMPUTE_TONS	7				2				1				9072			
NXI2WQ	320_EXIT	1				1				1				0			
NXI2WQ	330_TOTAL_TON	8				3				1				7200			
NXI2WQ	330_EXIT	1				1				1				0			
NXI2WQ	400_RETRO_OUTBND_SHPMTS	22				20				2				508288			
NXI2WQ	400_EXIT	1				1				1				0			
NXI2WQ	410_RETRO_APOE_LOOP	17				10				2				78608			
NXI2WQ	410_EXIT	1				1				1				0			
NXI2WQ	420_COMPUTE_RETRO_APOE	18				2				1				903168			
NXI2WQ	420_EXIT	1				1				1				0			
NXI2WQ	430_RETRO_TOTAL_REC	18				3				1				684450			
NXI2WQ	430_EXIT	1				1				1				0			
NXI2WQ	500_RETRO_SHPMTS_TONS	26				29				2				453024			
NXI2WQ	500_EXIT	1				1				1				0			
NXI2WQ	510_RETRO_TONS_LOOP	3				1				1				432			
NXI2WQ	510_EXIT	1				1				1				0			
NXI2WQ	520_COMPUTE_RETRO_TONS	7				2				1				9072			
NXI2WQ	520_EXIT	1				1				1				0			
NXI2WQ	530_TOTAL_RETRO_TONS	8				3				1				7200			
NXI2WQ	530_EXIT	1				1				1				0			
NXI2WQ	600_WRAPUP	2				1				1				0			
NXI2WQ	600_EXIT	1				1				1				0			
NXI2WQ	700_WRITE_HEADERS	9				8				1				2304			
NXI2WQ	700_WRITE_HEADERS_EXIT	1				1				1				0			
NXI2WQ	700_TONS_HEADERS	10				9				1				3240			
NXI2WQ	700_TONS_HEADERS_EXIT	1				1				1				0			
NXI2WQ	700_WRITE_RETRO_HDRS	9				8				1				2304			
NXI2WQ	700_WRITE_RETRO_EXIT	1				1				1				0			
NXI2WQ	700_RETRO_TONS_HDRS	10				9				1				3240			
NXI2WQ	700_RETRO_TONS_EXIT	1				1				1				0			
NXI2WQ	700_INIT_REPORT	2				1				1				32			
NXI2WQ	700_INIT_REPORT_EXIT	1				1				1				0			
NXI2WQ	700_INIT_RETRO	2				1				1				18			
NXI2WQ	700_INIT_RETRO_EXIT	1				1				1				0			
NXI2WQ	700_INIT_TONS	2				1				1				18			
NXI2WQ	700_INIT_TONS_EXIT	1				1				1				0			
NXI2WQ	700_INIT_RETRO_TONS	2				1				1				18			
NXI2WQ	700_INIT_RETRO_TONS_EXIT	1				1				1				0			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts Baseline	October	Januaray	April	McCabe's CC Baseline	October	Januaray	April	Max Nest Baseline	October	Januaray	April	Information Flow Baseline	October	Januaray	April
NXI3WQ	000_I3_DRIVER	4				1				1				0			
NXI3WQ	000_STOP_RUN	1				1				1				0			
NXI3WQ	100_HSKP	11				3				1				53900			
NXI3WQ	100_EXIT	1				1				1				0			
NXI3WQ	110_SELECT_RECORDS	17				21				2				4352			
NXI3WQ	110_EXIT	1				1				1				0			
NXI3WQ	200_HAZCGO_PROCESS	7				3				1				4032			
NXI3WQ	200_EXIT	1				1				1				0			
NXI3WQ	210_HAZCGO_COUNT	11				4				1				174636			
NXI3WQ	210_EXIT	1				1				1				0			
NXI3WQ	220_COMPUTE_HAZCGO	7				2				1				14175			
NXI3WQ	220_EXIT	1				1				1				0			
NXI3WQ	230_HAZCGO_TOTAL	11				3				1				43659			
NXI3WQ	230_EXIT	1				1				1				0			
NXI3WQ	300_WRAPUP	2				1				1				0			
NXI3WQ	300_EXIT	1				1				1				0			
NXI3WQ	700_WRITE_HEADERS	7				6				1				1008			
NXI3WQ	700_WRITE_HEADERS_EXIT	1				1				1				0			
NXI4WQ	000_I4_DRIVER	16				6				2				7744			
NXI4WQ	000_STOP_RUN	1				1				1				0			
NXI4WQ	100_HSKP	35				6				2				54512640			
NXI4WQ	100_EXIT	1				1				1				0			
NXI4WQ	105_LOAD_I4_STATION_TABLE	7				3				2				1008			
NXI4WQ	105_EXIT	1				1				1				0			
NXI4WQ	110_SELECT_RECORDS	18				8				2				31752			
NXI4WQ	110_EXIT	1				1				1				0			
NXI4WQ	200_PROCESS_RPT_1	21				11				3				162624			
NXI4WQ	200_EXIT	1				1				1				0			
NXI4WQ	300_PROCESS_RPT_2	21				11				3				162624			
NXI4WQ	300_EXIT	1				1				1				0			
NXI4WQ	400_PROCESS_RPT_3	21				12				3				162624			
NXI4WQ	400_EXIT	1				1				1				0			
NXI4WQ	500_PROCESS_RPT_4	21				12				3				162624			
NXI4WQ	500_EXIT	1				1				1				0			
NXI4WQ	600_WRAPUP	3				2				2				0			
NXI4WQ	600_EXIT	1				1				1				0			
NXI4WQ	700_COMPUTE	6				5				2				153600			
NXI4WQ	700_COMPUTE_EXIT	1				1				1				0			
NXI4WQ	710_ADD	41				31				3				22694976			
NXI4WQ	710_CONT	3				2				2				3			
NXI4WQ	710_ADD_EXIT	1				1				1				0			
NXI4WQ	720_COMPUTE_SVC	142				42				3				801643392			
NXI4WQ	720_EXIT	1				1				1				0			
NXI4WQ	730_PORT_TOTAL	118				34				3				1097695000			
NXI4WQ	730_EXIT	1				1				1				0			
NXI4WQ	740_GRAND_TOTAL	134				34				3				2013132384			
NXI4WQ	740_EXIT	1				1				1				0			
NXI4WQ	700_PREP	18				6				2				368082			
NXI4WQ	700_PREP_EXIT	1				1				1				0			
NXI4WQ	700_READ	2				2				1				72			
NXI4WQ	700_READ_EXIT	1				1				1				0			
NXI4WQ	700_CE_HEADERS	17				6				2				71825			
NXI4WQ	700_CE_HEADERS_EXIT	1				1				1				0			
NXI4WQ	700_CD_HEADERS	17				6				2				71825			
NXI4WQ	700_CD_HEADERS_EXIT	1				1				1				0			
NXI4WQ	700_OE_HEADERS	17				6				2				71825			
NXI4WQ	700_OE_HEADERS_EXIT	1				1				1				0			
NXI4WQ	700_OD_HEADERS	17				6				2				71825			
NXI4WQ	700_OD_HEADERS_EXIT	0				0				0				0			
NXI4WQ	700_TRAILERS	12				6				2				248832			
NXI4WQ	700_TRAILERS_EXIT	1				1				1				0			
NXI4WQ	700_SEARCH_STATION	6				4				2				1944			
NXI4WQ	700_SEARCH_STATION_EXIT	1				1				1				0			
NXI5WQ	000_I5_DRIVER	6				3				2				384			
NXI5WQ	000_STOP_RUN	1				1				1				0			
NXI5WQ	100_HSKP	29				5				2				9588125			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
NXI5WQ	100_EXIT	1				1				1				0			
NXI5WQ	110_SELECT_RECORDS	15				13				2				8640			
NXI5WQ	110_EXIT	1				1				1				0			
NXI5WQ	200_CONUS_OUTBOUND	8				5				2				5000			
NXI5WQ	200_EXIT	1				1				1				0			
NXI5WQ	210_MFST_STA	6				5				2				29400			
NXI5WQ	210_EXIT	1				1				1				0			
NXI5WQ	211_PRIORITY_SORT	31				14				3				12303900			
NXI5WQ	211_EXIT	1				1				1				0			
NXI5WQ	212_COMPUTE_PRIORITIES	109				32				3				1609782741			
NXI5WQ	212_EXIT	1				1				1				0			
NXI5WQ	220_PORT_TOTAL	99				30				2				1546994691			
NXI5WQ	220_EXIT	1				1				1				0			
NXI5WQ	230_REPORT_TOTAL	97				28				2				1250842257			
NXI5WQ	230_EXIT	1				1				1				0			
NXI5WQ	300_WRAPUP	5				2				2				0			
NXI5WQ	300_EXIT	1				1				1				0			
NXI5WQ	700_HEADERS	9				6				2				11664			
NXI5WQ	700_HEADERS_EXIT	1				1				1				0			
NXI5WQ	700_TOTAL_HDRS	11				3				2				8624			
NXI5WQ	700_TOTAL_HDRS_EXIT	1				1				1				0			
NXI5WQ	700_NAVY_HEADERS	9				6				2				11664			
NXI5WQ	700_NAVY_HEADERS_EXIT	1				1				1				0			
NXI5WQ	700_TRAILERS	8				3				2				41472			
NXI5WQ	700_TRAILERS_EXIT	1				1				1				0			
NXI6WQ	000_I6_DRIVER	4				2				1				36			
NXI6WQ	000_STOP_RUN	1				1				1				0			
NXI6WQ	100_HSKP	20				4				1				2178000			
NXI6WQ	100_EXIT	1				1				1				0			
NXI6WQ	110_SELECT_RECORDS	26				30				2				314600			
NXI6WQ	110_EXIT	1				1				1				0			
NXI6WQ	200_SHIP_IT	8				4				2				8192			
NXI6WQ	200_EXIT	1				1				1				0			
NXI6WQ	210_APOE_LOOP	20				7				2				619520			
NXI6WQ	210_EXIT	1				1				1				0			
NXI6WQ	211_APOD_LOOP	7				2				1				14175			
NXI6WQ	211_EXIT	1				1				1				0			
NXI6WQ	220_APOE_TOTAL	13				3				2				56628			
NXI6WQ	220_EXIT	1				1				1				0			
NXI6WQ	230_REPORT_TOTAL	14				3				2				50400			
NXI6WQ	230_EXIT	1				1				1				0			
NXI6WQ	300_WRAPUP	12				1				1				0			
NXI6WQ	300_EXIT	1				1				1				0			
NXI6WQ	700_HEADERS	6				6				1				1944			
NXI6WQ	700_HEADERS_EXIT	1				1				1				0			
NXI6WQ	700_TRAILERS	4				2				1				2304			
NXI6WQ	700_TRAILERS_EXIT	1				1				1				0			
NXI7WQ	000_I7_DRIVER	6				3				1				150			
NXI7WQ	000_STOP_RUN	1				1				1				0			
NXI7WQ	100_HSKP	31				3				1				10718064			
NXI7WQ	100_EXIT	1				1				1				0			
NXI7WQ	110_SELECT_RECORDS	16				12				2				16384			
NXI7WQ	110_EXIT	1				1				1				0			
NXI7WQ	200_MFSTSTA_NOT_APOE	15				4				2				45375			
NXI7WQ	200_EXIT	1				1				1				0			
NXI7WQ	210_SERVICES	12				8				2				28812			
NXI7WQ	210_EXIT	1				1				1				0			
NXI7WQ	211_SERVICE_SORT	27				6				2				3158028			
NXI7WQ	211_EXIT	1				1				1				0			
NXI7WQ	212_COMPUTE_SVCS	44				4				3				21560000			
NXI7WQ	212_EXIT	1				1				1				0			
NXI7WQ	220_MFST_STA_TOTAL	48				2				2				75480768			
NXI7WQ	220_EXIT	1				1				1				0			
NXI7WQ	230_REPORT_TOTAL	49				2				2				81162081			
NXI7WQ	230_EXIT	1				1				1				0			
NXI7WQ	300_INTERIM	16				1				1				43264			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
NXI7WQ	300_EXIT	1				1				1				0			
NXI7WQ	400_MFSTSTA_APOE	13				4				2				32500			
NXI7WQ	400_EXIT	1				1				1				0			
NXI7WQ	410_SERVICES	12				8				2				28812			
NXI7WQ	410_EXIT	1				1				1				0			
NXI7WQ	411_SERVICE_SORT	28				7				2				3161088			
NXI7WQ	411_CONTINUE	3				1				1				108			
NXI7WQ	411_EXIT	1				1				1				0			
NXI7WQ	412_COMPUTE_SVCS	44				4				3				21560000			
NXI7WQ	412_EXIT	1				1				1				0			
NXI7WQ	420_APOE_TOTAL	48				2				2				75480768			
NXI7WQ	420_EXIT	1				1				1				0			
NXI7WQ	430_REPORT_TOTAL	49				2				2				81162081			
NXI7WQ	430_EXIT	1				1				1				0			
NXI7WQ	500_WRAPUP	6				1				1				0			
NXI7WQ	500_EXIT	1				1				1				0			
NXI7WQ	700_HEADERS	9				7				1				20736			
NXI7WQ	700_HEADERS_EXIT	1				1				1				0			
NXI7WQ	700_ORG_HEADERS	8				6				1				15488			
NXI7WQ	700_ORG_HEADERS_EXIT	1				1				1				0			
NXI7WQ	700_TRAILERS	5				2				2				18000			
NXI7WQ	700_TRAILERS_EXIT	1				1				1				0			
NXI7WQ	700_READ	2				2				1				50			
NXI7WQ	700_READ_EXIT	1				1				1				0			
NXI8WQ	000_I8_DRIVER	4				2				1				36			
NXI8WQ	000_STOP_RUN	1				1				1				0			
NXI8WQ	100_HSKP	26				4				1				5033600			
NXI8WQ	100_EXIT	1				1				1				0			
NXI8WQ	110_SELECT_RECORDS	15				10				2				8640			
NXI8WQ	110_EXIT	1				1				1				0			
NXI8WQ	200_NTAC	7				4				2				7168			
NXI8WQ	200_EXIT	1				1				1				0			
NXI8WQ	210_APOE_LOOP	4				4				1				1296			
NXI8WQ	210_EXIT	1				1				1				0			
NXI8WQ	211_APOD_LOOP	27				8				2				2430000			
NXI8WQ	211_EXIT	1				1				1				0			
NXI8WQ	211A_TAC_LOOP	9				2				1				97344			
NXI8WQ	211A_EXIT	1				1				1				0			
NXI8WQ	220_APOE_TOTAL	16				3				2				97344			
NXI8WQ	220_EXIT	1				1				1				0			
NXI8WQ	230_REPORT_TOTAL	16				3				2				112896			
NXI8WQ	230_EXIT	1				1				1				0			
NXI8WQ	300_WRAPUP	4				1				1				0			
NXI8WQ	300_EXIT	1				1				1				0			
NXI8WQ	700_HEADERS	8				5				1				10368			
NXI8WQ	700_HEADERS_EXIT	1				1				1				0			
NXI8WQ	700_TRAILERS	5				2				1				2880			
NXI8WQ	700_TRAILERS_EXIT	1				1				1				0			
NXI9WQ	000_I9_DRIVER	3				2				1				27			
NXI9WQ	000_STOP_RUN	1				1				1				0			
NXI9WQ	100_HSKP	19				5				1				1710000			
NXI9WQ	100_EXIT	1				1				1				0			
NXI9WQ	110_LOAD_CHNL_TABLE	5				2				1				405			
NXI9WQ	110_EXIT	1				1				1				0			
NXI9WQ	120_SELECT_RECORDS	24				10				2				405600			
NXI9WQ	120_EXIT	1				1				1				0			
NXI9WQ	130_SEARCH_APOE	5				3				1				500			
NXI9WQ	130_EXIT	1				1				1				0			
NXI9WQ	200_BUILD_REPORT	13				6				2				83200			
NXI9WQ	200_EXIT	1				1				1				0			
NXI9WQ	210_EACH_APOD	10				5				2				100000			
NXI9WQ	210_EXIT	1				1				1				0			
NXI9WQ	215_ADD_RECORDS	30				12				2				4704480			
NXI9WQ	215_EXIT	1				1				1				0			
NXI9WQ	220_ADD_PALLETS	2				2				1				8			
NXI9WQ	220_EXIT	1				1				1				0			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts Baseline	October	Januaray	April	McCabe's CC Baseline	October	Januaray	April	Max Nest Baseline	October	Januaray	April	Information Flow Baseline	October	Januaray	April
NXI9WQ	231_COMPUTE	2				1				1				0			
NXI9WQ	231_EXIT	1				1				1				0			
NXI9WQ	232_WRITE_LINE	45				3				2				21611205			
NXI9WQ	232_EXIT	1				1				1				0			
NXI9WQ	300_WRAP_UP	6				2				1				3750			
NXI9WQ	300_EXIT	1				1				1				0			
NXI9WQ	600_NEXT_PAGE	3				2				1				972			
NXI9WQ	600_EXIT	1				1				1				0			
NXI9WQ	700_WRITE_HEADERS	9				6				1				18225			
NXI9WQ	700_EXIT	1				1				1				0			
NXIAWQ	000_I9_DRIVER	3				2				1				27			
NXIAWQ	000_STOP_RUN	1				1				1				0			
NXIAWQ	100_HSKP	19				5				1				1710000			
NXIAWQ	100_EXIT	1				1				1				0			
NXIAWQ	110_LOAD_CHNL_TABLE	5				2				1				405			
NXIAWQ	110_EXIT	1				1				1				0			
NXIAWQ	120_SELECT_RECORDS	24				10				2				405600			
NXIAWQ	120_EXIT	1				1				1				0			
NXIAWQ	130_SEARCH_APOE	5				3				1				500			
NXIAWQ	130_EXIT	1				1				1				0			
NXIAWQ	200_BUILD_REPORT	13				6				2				83200			
NXIAWQ	200_EXIT	1				1				1				0			
NXIAWQ	210_EACH_APOD	10				5				2				100000			
NXIAWQ	210_EXIT	1				1				1				0			
NXIAWQ	215_ADD_RECORDS	30				12				2				4704480			
NXIAWQ	215_EXIT	1				1				1				0			
NXIAWQ	220_ADD_PALLETS	2				2				1				8			
NXIAWQ	220_EXIT	1				1				1				0			
NXIAWQ	231_COMPUTE	2				1				1				0			
NXIAWQ	231_EXIT	1				1				1				0			
NXIAWQ	232_WRITE_LINE	45				3				2				21611205			
NXIAWQ	232_EXIT	1				1				1				0			
NXIAWQ	300_WRAP_UP	6				2				1				3750			
NXIAWQ	300_EXIT	1				1				1				0			
NXIAWQ	600_NEXT_PAGE	3				2				1				972			
NXIAWQ	600_EXIT	1				1				1				0			
NXIAWQ	700_WRITE_HEADERS	9				6				1				18225			
NXIAWQ	700_EXIT	1				1				1				0			
NXIBWQ	000_I9_DRIVER	3				2				1				27			
NXIBWQ	000_STOP_RUN	1				1				1				0			
NXIBWQ	100_HSKP	20				5				1				1984500			
NXIBWQ	100_EXIT	1				1				1				0			
NXIBWQ	110_LOAD_CHNL_TABLE	5				2				1				405			
NXIBWQ	110_EXIT	1				1				1				0			
NXIBWQ	120_SELECT_RECORDS	25				10				2				490000			
NXIBWQ	120_EXIT	1				1				1				0			
NXIBWQ	130_SEARCH_APOE	5				3				1				500			
NXIBWQ	130_EXIT	1				1				1				0			
NXIBWQ	200_BUILD_REPORT	13				6				2				83200			
NXIBWQ	200_EXIT	1				1				1				0			
NXIBWQ	210_EACH_APOD	10				5				2				100000			
NXIBWQ	210_EXIT	1				1				1				0			
NXIBWQ	215_ADD_RECORDS	30				12				2				4704480			
NXIBWQ	215_EXIT	1				1				1				0			
NXIBWQ	220_ADD_PALLETS	2				2				1				8			
NXIBWQ	220_EXIT	1				1				1				0			
NXIBWQ	231_COMPUTE	2				1				1				0			
NXIBWQ	231_EXIT	1				1				1				0			
NXIBWQ	232_WRITE_LINE	45				3				2				21611205			
NXIBWQ	232_EXIT	1				1				1				0			
NXIBWQ	300_WRAP_UP	6				2				1				3750			
NXIBWQ	300_EXIT	1				1				1				0			
NXIBWQ	600_NEXT_PAGE	3				2				1				972			
NXIBWQ	600_EXIT	1				1				1				0			
NXIBWQ	700_WRITE_HEADERS	9				6				1				18225			
NXIBWQ	700_EXIT	1				1				1				0			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
NXICWQ	000_IC_DRIVER	6	6			3	3			2	2			384	384		
NXICWQ	000_STOP_RUN	1	1			1	1			1	1			0	0		
NXICWQ	100_HSKP	42	43			9	9			2	2			40336800	44299675		
NXICWQ	100_EXIT	1	1			1	1			1	1			0	0		
NXICWQ	110_SELECT_RECORDS	5	5			5	5			2	2			1125	1125		
NXICWQ	110_EXIT	1	1			1	1			1	1			0	0		
NXICWQ	111_ONHD_RECORDS	9	9			3	3			2	2			2304	2304		
NXICWQ	111_EXIT	1	1			1	1			1	1			0	0		
NXICWQ	112_OLD_MONTH_RECORDS	15	15			9	9			2	2			11760	11760		
NXICWQ	112_EXIT	1	1			1	1			1	1			0	0		
NXICWQ	113_HISTORY_RECORDS	11	11			8	8			2	2			3564	3564		
NXICWQ	113_EXIT	1	1			1	1			1	1			0	0		
NXICWQ	200_REPORT_BUILDER	5	5			4	4			2	2			1125	1125		
NXICWQ	200_EXIT	1	1			1	1			1	1			0	0		
NXICWQ	210_NAF_LOOP	5	5			5	5			2	2			2205	2205		
NXICWQ	210_EXIT	1	1			1	1			1	1			0	0		
NXICWQ	211_APOE_LOOP	7	7			6	6			2	2			14175	14175		
NXICWQ	211_EXIT	1	1			1	1			1	1			0	0		
NXICWQ	212_APOE_TOTAL	12	12			2	2			2	2			24300	24300		
NXICWQ	212_EXIT	1	1			1	1			1	1			0	0		
NXICWQ	2111_APOD_LOOP	27	27			11	11			2	2			97200	97200		
NXICWQ	2111_EXIT	1	1			1	1			1	1			0	0		
NXICWQ	2112_ALPHA_DAY	107	107			9	9			2	2			3019968	3019968		
NXICWQ	2112_EXIT	1	1			1	1			1	1			0	0		
NXICWQ	2113_APOD_TOTAL	15	15			3	3			2	2			77760	77760		
NXICWQ	2113_EXIT	1	1			1	1			1	1			0	0		
NXICWQ	220_NAF_TOTAL	13	13			2	2			2	2			20800	20800		
NXICWQ	220_EXIT	1	1			1	1			1	1			0	0		
NXICWQ	300_WRAPUP	9	9			2	2			2	2			57600	57600		
NXICWQ	300_EXIT	1	1			1	1			1	1			0	0		
NXICWQ	700_HEADERS	9	9			6	6			2	2			9216	9216		
NXICWQ	700_HEADERS_EXIT	1	1			1	1			1	1			0	0		
NXICWQ	700_DETERMINE_DAY_NUM	29	29			9	9			2	2			678861	678861		
NXICWQ	700_DAY_NUM_EXIT	1	1			1	1			1	1			0	0		
NXICWQ	700_TRAILER	5	5			3	3			2	2			720	720		
NXICWQ	700_TRAILER_EXIT	1	1			1	1			1	1			0	0		
NXICWQ	700_COMPUTE	16	16			2	2			2	2			1254400	1254400		
NXICWQ	700_COMPUTE_EXIT	1	1			1	1			1	1			0	0		
NXICWQ	700_NEW_PAGE	7	7			4	4			2	2			5488	5488		
NXICWQ	700_NEW_PAGE_EXIT	1	1			1	1			1	1			0	0		
NXICWQ	700_SELECT_AND_MOVE	20	18			20	19			2	2			208080	145800		
NXICWQ	700_SELECT_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	000_DRIVER	6	6			3	3			2	2			384	384		
NXIDWQ	000_STOP_RUN	1	1			1	1			1	1			0	0		
NXIDWQ	100_HSKP	31	31			4	4			2	2			21458944	21458944		
NXIDWQ	100_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	110_SELECT	23	19			6	6			2	2			1195632	109744		
NXIDWQ	110_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	111_SELECT_ONHAND	11	11			3	3			2	2			4400	4400		
NXIDWQ	111_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	112_SELECT_HISTORY	6	6			2	2			1	1			864	864		
NXIDWQ	112_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	113_SELECT_OLD_PZ3	11	11			3	3			2	2			4400	4400		
NXIDWQ	113_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	114_SELECT_PZ5_TAPE	6	6			2	2			1	1			864	864		
NXIDWQ	114_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	200_BUILDER	5	5			4	4			2	2			1125	1125		
NXIDWQ	200_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	210_NAF	5	5			5	5			2	2			2205	2205		
NXIDWQ	210_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	211_APOE	5	5			6	6			2	2			3645	3645		
NXIDWQ	211_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	2111_APOD	24	24			9	9			2	2			375000	375000		
NXIDWQ	2111_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	2112_APOD_TOTAL	17	17			4	4			2	2			67473	67473		
NXIDWQ	2112_EXIT	1	1			1	1			1	1			0	0		

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
NXIDWQ	212_APOE_TOTAL	10	10			2	2			2	2			9000	9000		
NXIDWQ	212_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	220_NAF_TOTAL	9	9			2	2			2	2			5625	5625		
NXIDWQ	220_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	300_WRAP_UP	14	14			2	2			2	2			243936	243936		
NXIDWQ	300_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	710_COMPUTE	45	45			14	14			2	2			4665780	4665780		
NXIDWQ	710_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	711_WRITE_AMC	10	10			5	5			2	2			12960	12960		
NXIDWQ	711_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	7111_AMC_TRAILER	7	7			3	3			2	2			16128	16128		
NXIDWQ	7111_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	7112_AMC_HEADER	6	6			5	5			2	2			1944	1944		
NXIDWQ	7112_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	712_WRITE_ARMY	8	8			4	4			2	2			10368	10368		
NXIDWQ	712_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	7121_ARMY_TRAILER	7	7			3	3			2	2			16128	16128		
NXIDWQ	7121_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	7122_ARMY_HEADER	6	6			5	5			2	2			1944	1944		
NXIDWQ	7122_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	713_WRITE_NAVY	8	8			4	4			2	2			10368	10368		
NXIDWQ	713_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	7131_NAVY_TRAILER	7	7			3	3			2	2			16128	16128		
NXIDWQ	7131_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	7132_NAVY_HEADER	6	6			5	5			2	2			1944	1944		
NXIDWQ	7132_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	714_WRITE_USAF	8	8			4	4			2	2			10368	10368		
NXIDWQ	714_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	7141_USAF_TRAILER	7	7			3	3			2	2			16128	16128		
NXIDWQ	7141_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	7142_USAF_HEADER	6	6			5	5			2	2			1944	1944		
NXIDWQ	7142_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	715_WRITE_USMC	8	8			4	4			2	2			10368	10368		
NXIDWQ	715_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	7151_USMC_TRAILER	7	7			3	3			2	2			16128	16128		
NXIDWQ	7151_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	7152_USMC_HEADER	6	6			5	5			2	2			1944	1944		
NXIDWQ	7152_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	716_WRITE_DLA	8	8			4	4			2	2			10368	10368		
NXIDWQ	716_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	7161_DLA_TRAILER	7	7			3	3			2	2			16128	16128		
NXIDWQ	7161_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	7162_DLA_HEADER	6	6			5	5			2	2			1944	1944		
NXIDWQ	7162_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	717_WRITE_DECA	8	8			4	4			2	2			10368	10368		
NXIDWQ	717_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	7171_DECA_TRAILER	7	7			3	3			2	2			16128	16128		
NXIDWQ	7171_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	7172_DECA_HEADER	6	6			5	5			2	2			1944	1944		
NXIDWQ	7172_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	720_PROCESS	32	32			19	18			2	2			4333568	3612672		
NXIDWQ	720_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	730_HEADERS	19	19			7	7			1	1			14896	14896		
NXIDWQ	730_EXIT	1	1			1	1			1	1			0	0		
NXIDWQ	740_TRAILERS	7	7			1	1			1	1			0	0		
NXIDWQ	740_EXIT	1	1			1	1			1	1			0	0		
NXL0WQ	000_DRIVER	11				4				2				8624			
NXL0WQ	000_EXIT	1				1				1				0			
NXL0WQ	100_RSPAWN_L2	15				2				2				47040			
NXL0WQ	100_EXIT	1				1				1				0			
NXL0WQ	200_RSPAWN_S0	15				2				2				47040			
NXL0WQ	200_EXIT	1				1				1				0			
NXL0WQ	400_RSPAWN_M0	18				3				2				73728			
NXL0WQ	400_EXIT	1				1				1				0			
NXL0WQ	700_RS_ABORT	15				6				2				2160			
NXL0WQ	700_EXIT	1				1				1				0			

B-13

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts Baseline	October	Januaray	April	McCabe's CC Baseline	October	Januaray	April	Max Nest Baseline	October	Januaray	April	Information Flow Baseline	October	Januaray	April
NXL1WQ	000_L1_KEY_BUILD_DRIVER	24				8				2				1280664			
NXL1WQ	000_EXIT	1				1				1				0			
NXL1WQ	100_PROCESS_DATA_DRIVER	100				18				3				116208400			
NXL1WQ	100_EXIT	1				1				1				0			
NXL1WQ	105_LOAD_PGM_TABLES	24				12				3				470400			
NXL1WQ	105_EXIT	1				1				1				0			
NXL1WQ	110_PROCESS_MOVEMENT	59				21				2				30585600			
NXL1WQ	110_EXIT	1				1				1				0			
NXL1WQ	111_READ_MOVEMENT	12				4				2				15552			
NXL1WQ	111_EXIT	1				1				1				0			
NXL1WQ	112_SELECT_LG_DELETED_TCMD	18				6				2				176418			
NXL1WQ	112_EXIT	1				1				1				0			
NXL1WQ	113_SELECT_L7_MOVEMENT_CONTROL	8				11				2				0			
NXL1WQ	1131_FORMAT_L7_MOVEMENT	19				6				3				536256			
NXL1WQ	113_EXIT	1				1				1				0			
NXL1WQ	114_SELECT_L9_MOVEMENT_CONTROL	6				6				2				0			
NXL1WQ	1151_FORMAT_L9_MOVEMENT	15				5				3				77760			
NXL1WQ	114_EXIT	1				1				1				0			
NXL1WQ	115_SELECT_LB_MOVEMENT_CONTROL	14				13				2				0			
NXL1WQ	1151_FORMAT_LB_MOVEMENT	15				3				2				365040			
NXL1WQ	115_EXIT	1				1				1				0			
NXL1WQ	116_SELECT_LE_MOVEMENT_CONTROL	8				5				2				0			
NXL1WQ	1161_FORMAT_LE_PALLET_MOVEMENT	13				3				2				130000			
NXL1WQ	116_EXIT	1				1				1				0			
NXL1WQ	117_SELECT_LF_MOVEMENT_CONTROL	12				8				2				0			
NXL1WQ	1171_FORMAT_LF_MOVEMENT	13				3				2				63700			
NXL1WQ	117_EXIT	1				1				1				0			
NXL1WQ	118_SELECT_LH_MOVEMENT_CONTROL	8				6				2				288			
NXL1WQ	1181_FORMAT_LH_PALLET_MOVEMENT	10				3				2				24010			
NXL1WQ	118_EXIT	1				1				1				0			
NXL1WQ	119_SELECT_S3_MOVEMENT_CONTROL	14				16				2				0			
NXL1WQ	1191_FORMAT_S3_MOVEMENT	12				3				2				34992			
NXL1WQ	119_EXIT	1				1				1				0			
NXL1WQ	11A_SELECT_LP_MOVEMENT_CONTROL	14				12				3				0			
NXL1WQ	11A1_FORMAT_LP_MOVEMENT	7				2				1				9072			
NXL1WQ	11A_EXIT	1				1				1				0			
NXL1WQ	120_PROCESS_ON_HAND	44				16				2				10392624			
NXL1WQ	120_EXIT	1				1				1				0			
NXL1WQ	121_READ_ON_HAND	11				4				2				9900			
NXL1WQ	121_EXIT	1				1				1				0			
NXL1WQ	122_FORMAT_L5_ON_HAND	28				19				2				1367548			
NXL1WQ	122_EXIT	1				1				1				0			
NXL1WQ	123_FORMAT_LD_ON_HAND	20				18				2				141120			
NXL1WQ	123_EXIT	1				1				1				0			
NXL1WQ	124_FORMAT_S1_ON_HAND	22				21				2				301158			
NXL1WQ	124_EXIT	1				1				1				0			
NXL1WQ	125_FORMAT_LF_ON_HAND	21				12				2				302400			
NXL1WQ	125_EXIT	1				1				1				0			
NXL1WQ	126_FORMAT_S3_ON_HAND	20				22				2				233280			
NXL1WQ	126_EXIT	1				1				1				0			
NXL1WQ	127_FORMAT_L4_ON_HAND	32				20				2				1952288			
NXL1WQ	127_EXIT	1				1				1				0			
NXL1WQ	128_FORMAT_LM_ON_HAND	23				34				3				190463			
NXL1WQ	128_EXIT	1				1				1				0			
NXL1WQ	129_FORMAT_LN_ON_HAND	30				50				2				546750			
NXL1WQ	129_OFFSHORE_CONTINUE	27				27				3				164268			
NXL1WQ	129_PROCESS_CONTINUE	6				5				2				864			
NXL1WQ	129_EXIT	1				1				1				0			
NXL1WQ	12A_FORMAT_LO_ON_HAND	21				17				3				127764			
NXL1WQ	12A_EXIT	1				1				1				0			
NXL1WQ	200_LOAD_FILES_DRIVER	21				11				2				134400			
NXL1WQ	200_EXIT	1				1				1				0			
NXL1WQ	210_ALLOCATE_AKF_FILE	23				12				2				476928			
NXL1WQ	210_EXIT	1				1				1				0			
NXL1WQ	220_AKF_FILE_BUILD	8				5				2				1152			
NXL1WQ	220_EXIT	1				1				1				0			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
NXL1WQ	230_RELEASE_AKF_FILE	11				4				2				53900			
NXL1WQ	230_EXIT	1				1				1				0			
NXL1WQ	240_AKF_CLEANUP	22				11				2				360448			
NXL1WQ	240_EXIT	1				1				1				0			
NXL1WQ	300_REBUILD_PROCESS	21				6				2				18900			
NXL1WQ	300_EXIT	1				1				1				0			
NXL1WQ	310_FIND_RC	5				3				2				45			
NXL1WQ	310_EXIT	1				1				1				0			
NXL1WQ	320_LOAD_TEMP_AKF	8				4				2				512			
NXL1WQ	320_EXIT	1				1				1				0			
NXL1WQ	700_ADDFIL_ERROR_CHECK	12				4				2				43200			
NXL1WQ	700_ADDFIL_ERROR_CHECK_EXIT	1				1				1				0			
NXL1WQ	700_SEARCH_PGM_STA_TABLE	6				6				2				1176			
NXL1WQ	700_SEARCH_PGM_STA_TABLE_EXIT	1				1				1				0			
NXL1WQ	700_SEARCH_CHNL_TABLE_DTL	11				7				2				14256			
NXL1WQ	700_SEARCH_CHNL_TABLE_DTL_EXIT	1				1				1				0			
NXL1WQ	700_SEARCH_CHNL_TABLE_PLT	11				7				2				14256			
NXL1WQ	700_SEARCH_CHNL_TABLE_PLT_EXIT	1				1				1				0			
NXL1WQ	700_CHECK_NAF_INDICATORS	18				5				2				10368			
NXL1WQ	700_CHECK_NAF_INDICATORS_EXIT	1				1				1				0			
NXL1WQ	700_FORMAT_NAF	24				25				2				13824			
NXL1WQ	700_FORMAT_NAF_EXIT	1				1				1				0			
NXL2WQ	000_L2_DRIVER	18				9				2				194688			
NXL2WQ	000_EXIT_PROGRAM	1				1				1				0			
NXL2WQ	100_SLEW_TRANSLATOR_HSKP	22				3				2				285912			
NXL2WQ	100_EXIT	1				1				1				0			
NXL2WQ	200_SLEW_TRANSLATOR_DRIVER	5				2				2				80			
NXL2WQ	200_EXIT	1				1				1				0			
NXL2WQ	210_READ_L2_REPORT_FILE	10				4				3				1000			
NXL2WQ	210_EXIT	1				1				1				0			
NXL2WQ	220_TRANSLATE_AND_WRITE	50				13				4				520200			
NXL2WQ	220_EXIT	1				1				1				0			
NXL2WQ	221_SPACE_LINE	5				2				1				2205			
NXL2WQ	221_EXIT	1				1				1				0			
NXL2WQ	222_REPORT_DATA	7				3				2				16128			
NXL2WQ	222_EXIT	1				1				1				0			
NXL2WQ	300_SLEW_TRANSLATOR_WRAPUP	2				1				1				0			
NXL2WQ	300_EXIT	1				1				1				0			
NXL2WQ	400_RPT_TRANSMITTER_HSKP	22				2				2				400950			
NXL2WQ	400_EXIT	1				1				1				0			
NXL2WQ	500_RPT_TRANSMITTER_DRIVER	9				8				2				8100			
NXL2WQ	500_EXIT	1				1				1				0			
NXL2WQ	510_MINIS_SEND_DRIVER	11				8				2				6875			
NXL2WQ	510_EXIT	1				1				1				0			
NXL2WQ	511_FIRST_READ	13				3				2				15925			
NXL2WQ	511_EXIT	1				1				1				0			
NXL2WQ	512_LOAD_MINI_PRT_HDR	13				3				2				46800			
NXL2WQ	512_EXIT	1				1				1				0			
NXL2WQ	513_LOAD_REPORT_DATA	19				9				2				134064			
NXL2WQ	513_EXIT	1				1				1				0			
NXL2WQ	514_MESSAGE_CONTROL	16				12				2				9216			
NXL2WQ	514_EXIT	1				1				1				0			
NXL2WQ	515_FORMAT_CALL_RBTCHO	22				5				2				521752			
NXL2WQ	515_EXIT	1				1				1				0			
NXL2WQ	520_BD700_SEND_DRIVER	3				2				1				48			
NXL2WQ	520_EXIT	1				1				1				0			
NXL2WQ	521_FIRST_READ	12				2				1				14700			
NXL2WQ	521_EXIT	1				1				1				0			
NXL2WQ	522_READ_SEND_RECORD	13				3				2				20800			
NXL2WQ	522_EXIT	1				1				1				0			
NXL2WQ	600_RPT_TRANSMITTER_WRAPUP	1				1				1				0			
NXL2WQ	600_EXIT	1				1				1				0			
NXL2WQ	700_ERROR_DISPLAY	12				1				1				0			
NXL2WQ	700_ERROR_DISPLAY_EXIT	1				1				1				0			
NXL4WQ	000_L4_DRIVER	13				6				2				37908			
NXL4WQ	000_STOP_RUN	1				1				1				0			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
NXL4WQ	100_HSKP	25				3				1				8410000			
NXL4WQ	100_EXIT	1				1				1				0			
NXL4WQ	110_LOAD_MAI_TABLE	5				2				1				405			
NXL4WQ	110_EXIT	1				1				1				0			
NXL4WQ	200_BUILD_REPORT	10				9				2				43560			
NXL4WQ	200_EXIT	1				1				1				0			
NXL4WQ	210_PROCESS_APOD	29				17				2				3025541			
NXL4WQ	210_EXIT	1				1				1				0			
NXL4WQ	211_SUPER_PRI_PROC	24				8				2				1944			
NXL4WQ	211_EXIT	1				1				1				0			
NXL4WQ	212_PRI_1_2_3_PROC	24				8				2				1944			
NXL4WQ	212_EXIT	1				1				1				0			
NXL4WQ	213_TOTAL_PROC	24				8				2				1944			
NXL4WQ	213_EXIT	1				1				1				0			
NXL4WQ	214_PRI_4_PROC	24				8				2				1944			
NXL4WQ	214_EXIT	1				1				1				0			
NXL4WQ	215_COMPUTE_WRITE	17				7				2				27200			
NXL4WQ	215_EXIT	1				1				1				0			
NXL4WQ	220_PROCESS_SUB_AREA	14				6				2				140000			
NXL4WQ	220_EXIT	1				1				1				0			
NXL4WQ	221_UPDATE_SUB_AREA_TABLE	2				2				1				32			
NXL4WQ	221_EXIT	1				1				1				0			
NXL4WQ	2211_PRI_PROC	2				2				1				32			
NXL4WQ	2211_EXIT	1				1				1				0			
NXL4WQ	22111_AGE_PROC	4				1				1				3600			
NXL4WQ	22111_EXIT	1				1				1				0			
NXL4WQ	230_PROCESS_MAI_AREA	19				8				3				331056			
NXL4WQ	230_EXIT	1				1				1				0			
NXL4WQ	231_UPDATE_MAI_AREA_TABLE	2				2				1				32			
NXL4WQ	231_EXIT	1				1				1				0			
NXL4WQ	2311_PRI_PROC	2				2				1				32			
NXL4WQ	2311_EXIT	1				1				1				0			
NXL4WQ	23111_AGE_PROC	4				1				1				3600			
NXL4WQ	23111_EXIT	1				1				1				0			
NXL4WQ	240_PROCESS_MFST_STATION	73				14				2				22892800			
NXL4WQ	240_EXIT	1				1				1				0			
NXL4WQ	241_HIGH_VOLUME	2				2				1				32			
NXL4WQ	241_EXIT	1				1				1				0			
NXL4WQ	2411_PRI_PROC	2				2				1				32			
NXL4WQ	2411_EXIT	1				1				1				0			
NXL4WQ	24111_AGE_PROC	14				2				2				17150			
NXL4WQ	24111_EXIT	1				1				1				0			
NXL4WQ	242_LOW_VOLUME	2				2				1				32			
NXL4WQ	242_EXIT	1				1				1				0			
NXL4WQ	2421_PRI_PROC	2				2				1				32			
NXL4WQ	2421_EXIT	1				1				1				0			
NXL4WQ	24211_AGE_PROC	14				2				2				17150			
NXL4WQ	24211_EXIT	1				1				1				0			
NXL4WQ	243_VALIDATED_FREQ	2				2				1				32			
NXL4WQ	243_EXIT	1				1				1				0			
NXL4WQ	2431_PRI_PROC	2				2				1				32			
NXL4WQ	2431_EXIT	1				1				1				0			
NXL4WQ	24311_AGE_PROC	14				2				2				17150			
NXL4WQ	24311_EXIT	1				1				1				0			
NXL4WQ	244_OTHER	2				2				1				32			
NXL4WQ	244_EXIT	1				1				1				0			
NXL4WQ	2441_PRI_PROC	2				2				1				32			
NXL4WQ	2441_EXIT	1				1				1				0			
NXL4WQ	24411_AGE_PROC	14				2				2				17150			
NXL4WQ	24411_EXIT	1				1				1				0			
NXL4WQ	245_GRAND_TOTAL	2				2				1				32			
NXL4WQ	245_EXIT	1				1				1				0			
NXL4WQ	2451_PRI_PROC	2				2				1				32			
NXL4WQ	2451_EXIT	1				1				1				0			
NXL4WQ	24511_AGE_PROC	21				6				2				52500			
NXL4WQ	24511_EXIT	1				1				1				0			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
NXL4WQ	250_WRITE_GRAND_TOTALS	4				1				1				36			
NXL4WQ	250_EXIT	1				1				1				0			
NXL4WQ	251_WRITE_21ST_AF_TOTALS	54				11				1				857304			
NXL4WQ	251_EXIT	1				1				1				0			
NXL4WQ	252_WRITE_22ND_AF_TOTALS	53				11				1				750533			
NXL4WQ	252_EXIT	1				1				1				0			
NXL4WQ	253_WRITE_MAC_HQ_TOTALS	51				11				1				722211			
NXL4WQ	253_EXIT	1				1				1				0			
NXL4WQ	300_WRAPUP	2				1				1				0			
NXL4WQ	300_EXIT	1				1				1				0			
NXL4WQ	700_TRAILER	6				2				1				25350			
NXL4WQ	700_TRAILER_EXIT	1				1				1				0			
NXL4WQ	700_HEADERS_PART_I	22				12				2				1064800			
NXL4WQ	700_HEADERS_PART_I_EXIT	1				1				1				0			
NXL4WQ	700_HEADERS_PART_II	9				7				1				5184			
NXL4WQ	700_HEADERS_PART_II_EXIT	1				1				1				0			
NXL4WQ	700_WRITE_AF_TOTAL_HDR	8				7				1				2048			
NXL4WQ	700_WRITE_AF_TOTAL_HDR_EXIT	1				1				1				0			
NXL4WQ	700_WRITE_MAC_TOTAL_HDR	8				7				1				1568			
NXL4WQ	700_WRITE_MAC_TOTAL_HDR_EXIT	1				1				1				0			
NXL4WQ	700_ERROR_ROUTINE	6				1				1				0			
NXL4WQ	700_ERROR_ROUTINE_EXIT	1				1				1				0			
NXL4WQ	700_COMPUTE	3				1				1				8112			
NXL4WQ	700_COMPUTE_EXIT	1				1				1				0			
NXL4WQ	710_COMPUTE_TABLE	2				2				1				32			
NXL4WQ	710_COMPUTE_TABLE_EXIT	1				1				1				0			
NXL4WQ	711_PRI_PROC	2				2				1				32			
NXL4WQ	711_PRI_PROC_EXIT	1				1				1				0			
NXL4WQ	7111_AGE_PROC	4				1				1				2304			
NXL4WQ	7111_TYPE_AGE_EXIT	1				1				1				0			
NXL4WQ	720_FORMAT_WRITE	77				7				1				1509200			
NXL4WQ	720_FORMAT_WRITE_EXIT	1				1				1				0			
NXL5WQ	000_L5_DRIVER	13				6				2				37908			
NXL5WQ	000_STOP_RUN	1				1				1				0			
NXL5WQ	100_HSKP	26				3				1				9360000			
NXL5WQ	100_EXIT	1				1				1				0			
NXL5WQ	110_LOAD_MAI_TABLE	6				2				1				1350			
NXL5WQ	110_EXIT	1				1				1				0			
NXL5WQ	200_BUILD_REPORT	10				8				2				43560			
NXL5WQ	200_EXIT	1				1				1				0			
NXL5WQ	210_PROCESS_APOD	38				18				3				12563750			
NXL5WQ	210_EXIT	1				1				1				0			
NXL5WQ	211_SUPER_PRI_PROC	24				7				2				1944			
NXL5WQ	211_EXIT	1				1				1				0			
NXL5WQ	212_PRI_1_2_3_PROC	24				7				2				1944			
NXL5WQ	212_EXIT	1				1				1				0			
NXL5WQ	213_TOTAL_PROC	24				7				2				1944			
NXL5WQ	213_EXIT	1				1				1				0			
NXL5WQ	214_PRI_4_PROC	24				7				2				1944			
NXL5WQ	214_EXIT	1				1				1				0			
NXL5WQ	215_COMPUTE_WRITE	17				7				2				27200			
NXL5WQ	215_EXIT	1				1				1				0			
NXL5WQ	220_PROCESS_SUB_AREA	14				6				2				140000			
NXL5WQ	220_EXIT	1				1				1				0			
NXL5WQ	221_UPDATE_SUB_AREA_TABLE	2				2				1				32			
NXL5WQ	221_EXIT	1				1				1				0			
NXL5WQ	2211_PRI_PROC	2				2				1				32			
NXL5WQ	2211_EXIT	1				1				1				0			
NXL5WQ	22111_AGE_PROC	4				1				1				3600			
NXL5WQ	22111_EXIT	1				1				1				0			
NXL5WQ	230_PROCESS_MAI_AREA	18				8				2				313632			
NXL5WQ	230_EXIT	1				1				1				0			
NXL5WQ	231_UPDATE_MAI_AREA_TABLE	2				2				1				32			
NXL5WQ	231_EXIT	1				1				1				0			
NXL5WQ	2311_PRI_PROC	2				2				1				32			
NXL5WQ	2311_EXIT	1				1				1				0			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
NXL5WQ	23111_AGE_PROC	4				1				1				3600			
NXL5WQ	23111_EXIT	1				1				1				0			
NXL5WQ	240_PROCESS_MFST_STATION	73				14				2				22892800			
NXL5WQ	240_EXIT	1				1				1				0			
NXL5WQ	241_HIGH_VOLUME	2				2				1				32			
NXL5WQ	241_EXIT	1				1				1				0			
NXL5WQ	2411_PRI_PROC	2				2				1				32			
NXL5WQ	2411_EXIT	1				1				1				0			
NXL5WQ	24111_AGE_PROC	14				2				2				17150			
NXL5WQ	24111_EXIT	1				1				1				0			
NXL5WQ	242_LOW_VOLUME	2				2				1				32			
NXL5WQ	242_EXIT	1				1				1				0			
NXL5WQ	2421_PRI_PROC	2				2				1				32			
NXL5WQ	2421_EXIT	1				1				1				0			
NXL5WQ	24211_AGE_PROC	14				2				2				17150			
NXL5WQ	24211_EXIT	1				1				1				0			
NXL5WQ	243_VALIDATED_FREQ	2				2				1				32			
NXL5WQ	243_EXIT	1				1				1				0			
NXL5WQ	2431_PRI_PROC	2				2				1				32			
NXL5WQ	2431_EXIT	1				1				1				0			
NXL5WQ	24311_AGE_PROC	14				2				2				17150			
NXL5WQ	24311_EXIT	1				1				1				0			
NXL5WQ	244_OTHER	2				2				1				32			
NXL5WQ	244_EXIT	1				1				1				0			
NXL5WQ	2441_PRI_PROC	2				2				1				32			
NXL5WQ	2441_EXIT	1				1				1				0			
NXL5WQ	24411_AGE_PROC	14				2				2				17150			
NXL5WQ	24411_EXIT	1				1				1				0			
NXL5WQ	245_GRAND_TOTAL	2				2				1				32			
NXL5WQ	245_EXIT	1				1				1				0			
NXL5WQ	2451_PRI_PROC	2				2				1				32			
NXL5WQ	2451_EXIT	1				1				1				0			
NXL5WQ	24511_AGE_PROC	21				6				2				52500			
NXL5WQ	24511_EXIT	1				1				1				0			
NXL5WQ	250_WRITE_GRAND_TOTALS	4				1				1				36			
NXL5WQ	250_EXIT	1				1				1				0			
NXL5WQ	251_WRITE_21ST_AF_TOTALS	54				11				1				857304			
NXL5WQ	251_EXIT	1				1				1				0			
NXL5WQ	252_WRITE_22ND_AF_TOTALS	53				11				1				750533			
NXL5WQ	252_EXIT	1				1				1				0			
NXL5WQ	253_WRITE_MAC_HQ_TOTALS	51				11				1				722211			
NXL5WQ	253_EXIT	1				1				1				0			
NXL5WQ	300_WRAPUP	2				1				1				0			
NXL5WQ	300_EXIT	1				1				1				0			
NXL5WQ	700_TRAILER	6				2				1				25350			
NXL5WQ	700_TRAILER_EXIT	1				1				1				0			
NXL5WQ	700_HEADERS_PART_I	22				12				2				1163800			
NXL5WQ	700_HEADERS_PART_I_EXIT	1				1				1				0			
NXL5WQ	700_HEADERS_PART_II	9				7				1				5184			
NXL5WQ	700_HEADERS_PART_II_EXIT	1				1				1				0			
NXL5WQ	700_WRITE_AF_TOTAL_HDR	8				7				1				2048			
NXL5WQ	700_WRITE_AF_TOTAL_HDR_EXIT	1				1				1				0			
NXL5WQ	700_WRITE_MAC_TOTAL_HDR	8				7				1				1568			
NXL5WQ	700_WRITE_MAC_TOTAL_HDR_EXIT	1				1				1				0			
NXL5WQ	700_ERROR_ROUTINE	6				1				1				0			
NXL5WQ	700_ERROR_ROUTINE_EXIT	1				1				1				0			
NXL5WQ	700_COMPUTE	3				1				1				8112			
NXL5WQ	700_COMPUTE_EXIT	1				1				1				0			
NXL5WQ	710_COMPUTE_TABLE	2				2				1				32			
NXL5WQ	710_COMPUTE_TABLE_EXIT	1				1				1				0			
NXL5WQ	711_PRI_PROC	2				2				1				32			
NXL5WQ	711_PRI_PROC_EXIT	1				1				1				0			
NXL5WQ	7111_AGE_PROC	4				1				1				2304			
NXL5WQ	7111_TYPE_AGE_EXIT	1				1				1				0			
NXL5WQ	720_FORMAT_WRITE	82				7				1				1944712			
NXL5WQ	720_FORMAT_WRITE_EXIT	1				1				1				0			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts Baseline	October	Januaray	April	McCabe's CC Baseline	October	Januaray	April	Max Nest Baseline	October	Januaray	April	Information Flow Baseline	October	Januaray	April
NXL7WQ	000_DRIVER	12				4				2				10800			
NXL7WQ	000_STOP_RUN	1				1				1				0			
NXL7WQ	100_HOUSEKEEPING	26				4				1				5890976			
NXL7WQ	100_EXIT	1				1				1				0			
NXL7WQ	110_FORMAT_TOP_HDR	12				3				1				1728			
NXL7WQ	110_EXIT	1				1				1				0			
NXL7WQ	200_BUILD_REPORT	12				6				2				2700			
NXL7WQ	200_EXIT	1				1				1				0			
NXL7WQ	210_READ_AKF	5				2				1				45			
NXL7WQ	210_EXIT	1				1				1				0			
NXL7WQ	220_PROCESS_DATA	20				6				2				87120			
NXL7WQ	220_EXIT	1				1				1				0			
NXL7WQ	221_READ_MOVEMENT	8				2				1				1152			
NXL7WQ	221_EXIT	1				1				1				0			
NXL7WQ	222_FORMAT_DETAIL	49				16				2				46294416			
NXL7WQ	222_EXIT	1				1				1				0			
NXL7WQ	222_A_CHK_ZERO_HR	3				3				2				27			
NXL7WQ	222_A_CHK_ZERO_HR_EXIT	1				1				1				0			
NXL7WQ	222_T_CHK_ZERO_HR	3				3				2				27			
NXL7WQ	222_T_CHK_ZERO_HR_EXIT	1				1				1				0			
NXL7WQ	223_WRITE_PAGE_HEADER	11				5				2				89100			
NXL7WQ	223_EXIT	1				1				1				0			
NXL7WQ	224_WRITE_SUB_HEADER	22				7				2				68992			
NXL7WQ	224_EXIT	1				1				1				0			
NXL7WQ	225_WRITE_DETAIL	10				4				2				6250			
NXL7WQ	225_EXIT	1				1				1				0			
NXL7WQ	226_WRITE_PAGE_TRAILER	5				2				1				3920			
NXL7WQ	226_WRITE_PAGE_TRAILER_EXIT	1				1				1				0			
NXL7WQ	300_WRAP_UP	4				1				1				256			
NXL7WQ	300_EXIT	1				1				1				0			
NXL9WQ	000_L9_CONTROL_DRIVER	13				6				2				11700			
NXL9WQ	000_DRIVER_COMPLETE	4				2				2				196			
NXL9WQ	000_STOP_RUN	1				1				1				0			
NXL9WQ	100_HSKP_DRIVER	28				6				2				5347132			
NXL9WQ	100_EXIT	1				1				1				0			
NXL9WQ	200_UPDATE_DRIVER	40				29				4				585640			
NXL9WQ	200_EXIT	1				1				1				0			
NXL9WQ	210_CREATE	7				5				2				5488			
NXL9WQ	210_EXIT	1				1				1				0			
NXL9WQ	220_COPY	5				4				2				1620			
NXL9WQ	220_EXIT	1				1				1				0			
NXL9WQ	230_UPDATE	38				21				3				4290048			
NXL9WQ	230_EXIT	1				1				1				0			
NXL9WQ	231_SUPER_PRIORITY_ADD	6				2				2				2400			
NXL9WQ	231_ADD_EXIT	1				1				1				0			
NXL9WQ	231_SUPER_PRIORITY_SUBTRACT	10				2				2				16000			
NXL9WQ	231_SUBT_EXIT	1				1				1				0			
NXL9WQ	232_PRIORITY_1_2_3_ADD	6				2				2				2400			
NXL9WQ	232_ADD_EXIT	1				1				1				0			
NXL9WQ	232_PRIORITY_1_2_3_SUBTRACT	10				2				2				16000			
NXL9WQ	232_SUBT_EXIT	1				1				1				0			
NXL9WQ	233_SUPER_THRU_3_ADD	7				2				2				5488			
NXL9WQ	233_ADD_EXIT	1				1				1				0			
NXL9WQ	233_SUPER_THRU_3_SUBTRACT	11				2				2				34496			
NXL9WQ	233_SUBT_EXIT	0				0				0				0			
NXL9WQ	234_PRIORITY_4_ADD	6				2				2				2400			
NXL9WQ	234_ADD_EXIT	1				1				1				0			
NXL9WQ	234_PRIORITY_4_SUBTRACT	10				2				2				16000			
NXL9WQ	234_SUBT_EXIT	1				1				1				0			
NXL9WQ	300_BUILD_REPORT_DRIVER	35				8				2				2551500			
NXL9WQ	300_EXIT	1				1				1				0			
NXL9WQ	310_TYPE_PROCESS	84				7				3				261382464			
NXL9WQ	310_EXIT	1				1				1				0			
NXL9WQ	311_READ_NEW_SUBT	6				3				2				864			
NXL9WQ	311_EXIT	1				1				1				0			
NXL9WQ	320_SUB_TOTAL_OUTPUT	58				8				2				53452800			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts Baseline	October	Januaray	April	McCabe's CC Baseline	October	Januaray	April	Max Nest Baseline	October	Januaray	April	Information Flow Baseline	October	Januaray	April
NXL9WQ	320_EXIT	1				1				1				0			
NXL9WQ	330_STN_TOTAL_OUTPUT	39				5				2				11883456			
NXL9WQ	330_EXIT	1				1				1				0			
NXL9WQ	400_WRAP_UP	5				2				2				0			
NXL9WQ	400_EXIT	1				1				1				0			
NXL9WQ	700_WRITE_TRAILER	7				3				2				17500			
NXL9WQ	700_WRITE_TRAILER_EXIT	1				1				1				0			
NXL9WQ	700_WRITE_HEADA	4				3				2				1024			
NXL9WQ	700_WRITE_HEADA_EXIT	1				1				1				0			
NXL9WQ	700_WRITE_SUB_HEADINGS	18				11				2				101250			
NXL9WQ	700_WRITE_SUB_HEADINGS_EXIT	1				1				1				0			
NXLBWQ	000_DRIVER	18				9				2				259200			
NXLBWQ	000_STOP_RUN	1				1				1				0			
NXLBWQ	100_HOUSEKEEPING	48				10				3				67972800			
NXLBWQ	100_EXIT	1				1				1				0			
NXLBWQ	110_LOAD_MAI_TABLE	6				2				1				1350			
NXLBWQ	110_EXIT	1				1				1				0			
NXLBWQ	200_UPDATE_DRIVER	6				4				2				384			
NXLBWQ	200_EXIT	1				1				1				0			
NXLBWQ	210_READ_CONTROL	8				5				2				1800			
NXLBWQ	210_EXIT	1				1				1				0			
NXLBWQ	211_READ_AKF	7				3				2				1575			
NXLBWQ	211_EXIT	1				1				1				0			
NXLBWQ	212_READ_DAILY_MOVEMENT	12				4				2				9408			
NXLBWQ	212_EXIT	1				1				1				0			
NXLBWQ	213_READ_OLD_CUM_MVMT	10				3				2				12960			
NXLBWQ	213_EXIT	1				1				1				0			
NXLBWQ	220_UPDATE_AND_WRITE_CONTROL	14				6				2				12600			
NXLBWQ	220_EXIT	1				1				1				0			
NXLBWQ	221_WRITE_CUM_AND_DAILY_REC	12				4				2				37632			
NXLBWQ	221_EXIT	1				1				1				0			
NXLBWQ	222_CREATE_NEW_CUM_REC	87				47				3				74278512			
NXLBWQ	222_CONTINUE	16				6				2				46656			
NXLBWQ	222_EXIT	1				1				1				0			
NXLBWQ	223_UPDATE_CUM_REC	156				54				4				215744256			
NXLBWQ	223_EXIT	1				1				1				0			
NXLBWQ	300_REPORT_DRIVER	6				3				2				486			
NXLBWQ	300_EXIT	1				1				1				0			
NXLBWQ	310_READ_DAILY_AND_CUM	11				4				2				26411			
NXLBWQ	310_EXIT	1				1				1				0			
NXLBWQ	320_FORMAT_AND_WRITE_CONTROL	12				9				2				24300			
NXLBWQ	320_EXIT	1				1				1				0			
NXLBWQ	321_SUB_AREA_PROCESS	14				4				2				68600			
NXLBWQ	321_EXIT	1				1				1				0			
NXLBWQ	322_MAI_PROCESS	16				5				2				123904			
NXLBWQ	322_EXIT	1				1				1				0			
NXLBWQ	323_STATION_PROCESS	96				11				2				3538944			
NXLBWQ	323_EXIT	1				1				1				0			
NXLBWQ	324_APOD_PROCESS	53				15				4				2588573			
NXLBWQ	324_EXIT	1				1				1				0			
NXLBWQ	330_WRITE_GRAND_TOTALS	5				2				2				180			
NXLBWQ	330_EXIT	1				1				1				0			
NXLBWQ	331_WRITE_21ST_AF_TOTALS	44				7				2				228096			
NXLBWQ	331_EXIT	1				1				1				0			
NXLBWQ	332_WRITE_22ND_AF_TOTALS	44				7				2				228096			
NXLBWQ	332_EXIT	1				1				1				0			
NXLBWQ	333_WRITE_AMC_HQ_TOTALS	57				7				2				295488			
NXLBWQ	333_EXIT	1				1				1				0			
NXLBWQ	400_WRAPUP	3				2				2				0			
NXLBWQ	400_EXIT	1				1				1				0			
NXLBWQ	700_COMPUTE_PROCESS	197				15				2				3591881300			
NXLBWQ	700_COMPUTE_PROCESS_EXIT	1				1				1				0			
NXLBWQ	700_WRITE_HEADER_PART_1	18				10				3				130050			
NXLBWQ	700_WRITE_HEADER_PART1_EXIT	1				1				1				0			
NXLBWQ	700_WRITE_HEADER_PART_2	9				8				2				2916			
NXLBWQ	700_WRITE_HEADER_PART2_EXIT	1				1				1				0			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
NXLBWQ	700_WRITE_AF_TOTAL_HDR	9				8				2				2916			
NXLBWQ	700_WRITE_AF_TOTAL_HDR_EXIT	1				1				1				0			
NXLBWQ	700_WRITE_AMC_TOTAL_HDR	9				8				2				2304			
NXLBWQ	700_WRITE_AMC_TOTAL_HDR_EXIT	1				1				1				0			
NXLBWQ	700_WRITE_TRAILER	14				5				2				229376			
NXLBWQ	700_WRITE_TRAILER_EXIT	1				1				1				0			
NXLBWQ	700_SEARCH_MAI_CODE	6				4				2				1176			
NXLBWQ	700_SEARCH_MAI_CODE_EXIT	1				1				1				0			
NXLDWQ	000_LD_DRIVER	15				7				2				73500			
NXLDWQ	000_STOP_RUN	1				1				1				0			
NXLDWQ	100_HSKP	18				3				2				1312200			
NXLDWQ	100_EXIT	1				1				1				0			
NXLDWQ	200_BUILD_REPORT	18				5				3				472392			
NXLDWQ	200_EXIT	1				1				1				0			
NXLDWQ	210_READ_LD_AKF	4				3				2				36			
NXLDWQ	210_EXIT	1				1				1				0			
NXLDWQ	220_PROCESS_REPORT_DATA	15				5				2				54000			
NXLDWQ	220_EXIT	1				1				1				0			
NXLDWQ	221_WRITE_CHANNEL_LINE	30				6				2				14532480			
NXLDWQ	221_EXIT	1				1				1				0			
NXLDWQ	222_WRITE_GRAND_TOTALS	12				5				2				62208			
NXLDWQ	222_EXIT	1				1				1				0			
NXLDWQ	300_WRAPUP	3				2				2				0			
NXLDWQ	300_EXIT	1				1				1				0			
NXLDWQ	700_READ_AND_ADD	13				3				2				37908			
NXLDWQ	700_READ_EXIT	1				1				1				0			
NXLDWQ	700_WRITE_TRAILER	7				3				2				11200			
NXLDWQ	700_WRITE_TRAILER_EXIT	1				1				1				0			
NXLDWQ	700_WRITE_HEADERS	11				7				2				5324			
NXLDWQ	700_WRITE_HEADERS_EXIT	1				1				1				0			
NXLDWQ	700_ERROR_ROUTINE	7				2				2				0			
NXLDWQ	700_ERROR_ROUTINE_EXIT	1				1				1				0			
NXLEWQ	000_LE_DRIVER	13				6				2				37908			
NXLEWQ	000_STOP_RUN	1				1				1				0			
NXLEWQ	100_HOUSEKEEPING	22				2				1				2979328			
NXLEWQ	100_EXIT	1				1				1				0			
NXLEWQ	200_BUILD_REPORT	7				1				1				252			
NXLEWQ	200_EXIT	1				1				1				0			
NXLEWQ	210_READ_DETAIL_AND_NEW_AKF	28				5				3				3568572			
NXLEWQ	210_EXIT	1				1				1				0			
NXLEWQ	220_PROCESS_PRIORITY_DATA	21				25				3				108864			
NXLEWQ	220_EXIT	1				1				1				0			
NXLEWQ	230_PROCESS_DETAIL	21				19				3				571725			
NXLEWQ	230_EXIT	1				1				1				0			
NXLEWQ	231_WRITE_DETAIL	36				7				2				33246756			
NXLEWQ	231_EXIT	1				1				1				0			
NXLEWQ	240_PROCESS_MANIFEST_DEST	25				17				3				1440000			
NXLEWQ	240_EXIT	1				1				1				0			
NXLEWQ	241_WRITE_MANIFEST_DEST	20				4				1				1479680			
NXLEWQ	241_EXIT	1				1				1				0			
NXLEWQ	250_PROCESS_MISSION	27				16				3				1529388			
NXLEWQ	250_EXIT	1				1				1				0			
NXLEWQ	251_WRITE_PRI1_3_TOTAL	14				2				1				129024			
NXLEWQ	251_EXIT	1				1				1				0			
NXLEWQ	252_WRITE_TP4_TOTAL	19				3				2				393984			
NXLEWQ	252_EXIT	1				1				1				0			
NXLEWQ	253_WRITE_MISSION	23				5				2				1907712			
NXLEWQ	253_EXIT	1				1				1				0			
NXLEWQ	260_PROCESS_STATION	40				17				3				14113440			
NXLEWQ	260_EXIT	1				1				1				0			
NXLEWQ	261_WRITE_STATION	18				3				1				911250			
NXLEWQ	261_EXIT	1				1				1				0			
NXLEWQ	300_WRAPUP	2				1				1				0			
NXLEWQ	300_EXIT	1				1				1				0			
NXLEWQ	700_WRITE_TRAILER	6				2				1				15000			
NXLEWQ	700_WRITE_TRAILER_EXIT	1				1				1				0			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
NXLEWQ	700_WRITE_HEADERS	9				7				1				8100			
NXLEWQ	700_WRITE_HEADERS_EXIT	1				1				1				0			
NXLEWQ	700_ERROR_ROUTINE	6				1				1				0			
NXLEWQ	700_ERROR_ROUTINE_EXIT	1				1				1				0			
NXLFWQ	000_LF_DRIVER	12				7				2				47628			
NXLFWQ	000_STOP_RUN	1				1				1				0			
NXLFWQ	100_HSKP	62				14				3				52934112			
NXLFWQ	100_EXIT	1				1				1				0			
NXLFWQ	110_LOAD_STATION_TABLE	28				11				3				100800			
NXLFWQ	110_EXIT	1				1				1				0			
NXLFWQ	120_RESEQUENCE_SP_A_FILE	6				3				2				600			
NXLFWQ	120_EXIT	1				1				1				0			
NXLFWQ	121_PROCESS_SPACE_A_FILE	9				5				2				1296			
NXLFWQ	121_EXIT	1				1				1				0			
NXLFWQ	200_GEN_FILE_UPDATE	49				16				4				2480625			
NXLFWQ	200_EXIT	1				1				1				0			
NXLFWQ	210_UPDATE_WITH_TEMP_GEN_REC	40				3				2				7464960			
NXLFWQ	210_EXIT	1				1				1				0			
NXLFWQ	220_UPDATE_WITH_TC_REC	14				8				3				22400			
NXLFWQ	220_EXIT	1				1				1				0			
NXLFWQ	221_PROCESS_MVMT_LIFT_24	49				20				8				1254400			
NXLFWQ	221_EXIT	1				1				1				0			
NXLFWQ	222_PROCESS_MVMT_LIFT	35				20				8				283500			
NXLFWQ	222_EXIT	1				1				1				0			
NXLFWQ	223_PROCESS_MVMT_SUBT	35				20				8				283500			
NXLFWQ	223_EXIT	1				1				1				0			
NXLFWQ	224_PROCESS_ONHAND	35				20				8				283500			
NXLFWQ	224_EXIT	1				1				1				0			
NXLFWQ	300_BUILD_REPORT	8				6				2				4608			
NXLFWQ	300_EXIT	1				1				1				0			
NXLFWQ	310_HSKP	13				3				2				63700			
NXLFWQ	310_EXIT	1				1				1				0			
NXLFWQ	320_BUILD_PORTS_REPORT	14				7				2				204974			
NXLFWQ	320_EXIT	1				1				1				0			
NXLFWQ	321_PROCESS_GEN_REC	7				3				2				0			
NXLFWQ	321_EXIT	1				1				1				0			
NXLFWQ	322_PROCESS_SP_ASSIGN_REC	7				4				3				700			
NXLFWQ	322_EXIT	1				1				1				0			
NXLFWQ	3221_LOAD_SP_ASSIGN_REC	51				3				2				249900			
NXLFWQ	3221_EXIT	1				1				1				0			
NXLFWQ	330_WRITE_HQS_TOTALS	14				2				2				6174			
NXLFWQ	330_EXIT	1				1				1				0			
NXLFWQ	340_DISPLAY_COMPUTES	26				2				2				1124864			
NXLFWQ	340_EXIT	1				1				1				0			
NXLFWQ	400_WRAPUP	9				3				2				9801			
NXLFWQ	400_EXIT	1				1				1				0			
NXLFWQ	700_ERROR_ROUTINE	4				2				2				256			
NXLFWQ	700_ERROR_EXIT	1				1				1				0			
NXLFWQ	700_SEARCH_STATION_TABLE	8				7				2				512			
NXLFWQ	700_SEARCH_EXIT	1				1				1				0			
NXLFWQ	700_READ_LF_AKF	10				5				2				1440			
NXLFWQ	700_READ_AKF_EXIT	1				1				1				0			
NXLFWQ	700_READ_TEMP_GEN_REC	13				5				2				5733			
NXLFWQ	700_READ_TEMP_GEN_EXIT	1				1				1				0			
NXLFWQ	700_READ_TC_OH_REC	11				4				2				3564			
NXLFWQ	700_READ_TC_OH_EXIT	1				1				1				0			
NXLFWQ	700_READ_TC_MV_REC	12				4				2				6912			
NXLFWQ	700_READ_TC_MV_EXIT	1				1				1				0			
NXLFWQ	700_READ_GEN_REC	8				4				2				1152			
NXLFWQ	700_READ_GEN_REC_EXIT	1				1				1				0			
NXLFWQ	700_READ_SPACE_A_FILE	7				4				2				448			
NXLFWQ	700_READ_SPACE_A_FILE_EXIT	1				1				1				0			
NXLFWQ	700_WRITE_OUTPUT	47				18				2				5306112			
NXLFWQ	700_WRITE_OUTPUT_EXIT	1				1				1				0			
NXLFWQ	700_CONVERT_DATA	46				3				2				111658744			
NXLFWQ	700_CONVERT_DATA_EXIT	1				1				1				0			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
NXLFWQ	700_LOAD_AS_OF_DATE	15				6				2				181500			
NXLFWQ	700_LOAD_AS_OF_EXIT	1				1				1				0			
NXLGWQ	000_DRIVER	10				5				2				17640			
NXLGWQ	000_STOP_RUN	1				1				1				0			
NXLGWQ	100_HOUSEKEEPING	27				5				3				6750000			
NXLGWQ	100_EXIT	1				1				1				0			
NXLGWQ	200_PROCESS_RECORDS	15				7				2				73500			
NXLGWQ	200_EXIT	1				1				1				0			
NXLGWQ	210_PROCESS_NEW_MFST_STATION	13				4				2				46800			
NXLGWQ	210_EXIT	1				1				1				0			
NXLGWQ	220_WRITE_PART_TWO_HEADING	13				3				2				16848			
NXLGWQ	220_EXIT	1				1				1				0			
NXLGWQ	230_PRODUCE_DETAIL_LINE	10				4				2				7840			
NXLGWQ	230_EXIT	1				1				1				0			
NXLGWQ	231_FORMAT_DETAIL_LINE	41				3				2				40184100			
NXLGWQ	231_EXIT	1				1				1				0			
NXLGWQ	300_WRAPUP	2				1				1				0			
NXLGWQ	300_EXIT	1				1				1				0			
NXLGWQ	700_READ_AKF_AND_PZ1	11				3				1				6336			
NXLGWQ	700_READ_EXIT	1				1				1				0			
NXLGWQ	700_WRITE_TRAILER	9				3				2				20736			
NXLGWQ	700_WRITE_TRAILER_EXIT	1				1				1				0			
NXLGWQ	700_WRITE_HEADINGS	12				8				2				6912			
NXLGWQ	700_WRITE_HEADINGS_EXIT	1				1				1				0			
NXLGWQ	700_ERROR_ROUTINE	6				1				1				0			
NXLGWQ	700_ERROR_ROUTINE_EXIT	1				1				1				0			
NXLHWQ	000_LH_DRIVER	15				7				2				73500			
NXLHWQ	000_STOP_RUN	1				1				1				0			
NXLHWQ	100_HSKP	34				6				3				8636544			
NXLHWQ	100_EXIT	1				1				1				0			
NXLHWQ	200_PROCESS	14				3				2				42350			
NXLHWQ	200_EXIT	1				1				1				0			
NXLHWQ	210_PROCESS_DETAILS	21				7				2				162624			
NXLHWQ	210_EXIT	1				1				1				0			
NXLHWQ	211_FORMAT_REPORT	36				2				2				50979600			
NXLHWQ	211_EXIT	1				1				1				0			
NXLHWQ	212_UPDATE_COUNTERS	135				38				2				34292160			
NXLHWQ	212_EXIT	1				1				1				0			
NXLHWQ	220_PROCESS_TOTALS	4				2				2				64			
NXLHWQ	220_EXIT	1				1				1				0			
NXLHWQ	221_FORMAT_TOTALS	65				2				2				1089986625			
NXLHWQ	221_EXIT	1				1				1				0			
NXLHWQ	222_WRITE_TOTALS	32				31				2				115200			
NXLHWQ	222_EXIT	1				1				1				0			
NXLHWQ	300_WRAPUP	3				2				2				0			
NXLHWQ	300_EXIT	1				1				1				0			
NXLHWQ	700_WRITE_HEADER_PART_1	10				8				2				25000			
NXLHWQ	700_WRITE_HEADER_PART1_EXIT	1				1				1				0			
NXLHWQ	700_WRITE_HEADER_PART_2	7				6				2				1008			
NXLHWQ	700_WRITE_HEADER_PART2_EXIT	1				1				1				0			
NXLHWQ	700_WRITE_TRAILER	7				3				2				8575			
NXLHWQ	700_WRITE_TRAILER_EXIT	1				1				1				0			
NXLHWQ	700_ERROR_ROUTINE	5				2				2				0			
NXLHWQ	700_ERROR_ROUTINE_EXIT	1				1				1				0			
NXLMWQ	000_LM_DRIVER	15				7				2				73500			
NXLMWQ	000_STOP_RUN	1				1				1				0			
NXLMWQ	100_HSKP	30				4				2				20966880			
NXLMWQ	100_EXIT	1				1				1				0			
NXLMWQ	200_BUILD_REPORT	4				2				2				64			
NXLMWQ	200_EXIT	1				1				1				0			
NXLMWQ	210_READ_LM_AKF	5				3				2				180			
NXLMWQ	210_EXIT	1				1				1				0			
NXLMWQ	220_PROCESS_REPORT_DATA	27				10				3				789507			
NXLMWQ	220_EXIT	1				1				1				0			
NXLMWQ	221_WRITE_PRIORITY_LINE	41				13				2				14760000			
NXLMWQ	221_EXIT	1				1				1				0			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
NXLMWQ	222_WRITE_TYPE_TOTALS	29				6				2				6189876			
NXLMWQ	222_EXIT	1				1				1				0			
NXLMWQ	223_WRITE_STATION_TOTALS	26				5				2				5033600			
NXLMWQ	223_EXIT	1				1				1				0			
NXLMWQ	300_WRAPUP	3				2				2				0			
NXLMWQ	300_EXIT	1				1				1				0			
NXLMWQ	700_READ_AND_ADD	30				13				2				702270			
NXLMWQ	700_READ_EXIT	1				1				1				0			
NXLMWQ	700_WRITE_TRAILER	7				3				2				11200			
NXLMWQ	700_WRITE_TRAILER_EXIT	1				1				1				0			
NXLMWQ	700_WRITE_HEADERS	8				6				2				2592			
NXLMWQ	700_WRITE_HEADERS_EXIT	1				1				1				0			
NXLMWQ	700_ERROR_ROUTINE	7				2				2				0			
NXLMWQ	700_ERROR_ROUTINE_EXIT	1				1				1				0			
NXLNWQ	000_LN_DRIVER	13				6				2				37908			
NXLNWQ	000_STOP_RUN	1				1				1				0			
NXLNWQ	100_HSKP	30				3				2				17146080			
NXLNWQ	100_EXIT	1				1				1				0			
NXLNWQ	200_BUILD_REPORT	3				1				1				12			
NXLNWQ	200_EXIT	1				1				1				0			
NXLNWQ	210_READ_LN_AKF	4				2				1				64			
NXLNWQ	210_EXIT	1				1				1				0			
NXLNWQ	220_PROCESS_REPORT_DATA	24				8				2				497664			
NXLNWQ	220_EXIT	1				1				1				0			
NXLNWQ	221_WRITE_CHANNEL_LINE	33				5				2				28174608			
NXLNWQ	221_EXIT	1				1				1				0			
NXLNWQ	222_WRITE_TOTALS	23				10				2				150903			
NXLNWQ	222_EXIT	1				1				1				0			
NXLNWQ	223_WRITE_GRAND_TOTALS	12				4				2				47628			
NXLNWQ	223_EXIT	1				1				1				0			
NXLNWQ	300_WRAPUP	2				1				1				0			
NXLNWQ	300_EXIT	1				1				1				0			
NXLNWQ	700_READ_AND_ADD	15				2				1				77760			
NXLNWQ	700_READ_EXIT	1				1				1				0			
NXLNWQ	700_WRITE_TRAILER	6				2				1				7350			
NXLNWQ	700_WRITE_TRAILER_EXIT	1				1				1				0			
NXLNWQ	700_WRITE_HEADERS	10				6				2				7290			
NXLNWQ	700_WRITE_HEADERS_EXIT	1				1				1				0			
NXLNWQ	700_WRITE_DETAIL_HEADERS	22				11				2				12672			
NXLNWQ	700_WRITE_DETAIL_HEADERS_EXIT	1				1				1				0			
NXLNWQ	700_ERROR_ROUTINE	6				1				1				0			
NXLNWQ	700_ERROR_ROUTINE_EXIT	1				1				1				0			
NXLOWQ	000_LO_DRIVER	13				6				2				37908			
NXLOWQ	000_STOP_RUN	1				1				1				0			
NXLOWQ	100_HSKP	18				2				1				1462050			
NXLOWQ	100_EXIT	1				1				1				0			
NXLOWQ	200_BUILD_REPORT	18				4				3				373248			
NXLOWQ	200_EXIT	1				1				1				0			
NXLOWQ	210_READ_LO_AKF	4				2				1				64			
NXLOWQ	210_EXIT	1				1				1				0			
NXLOWQ	220_PROCESS_REPORT_DATA	17				6				3				88128			
NXLOWQ	220_EXIT	1				1				1				0			
NXLOWQ	221_WRITE_APOD_LINE	19				3				2				536256			
NXLOWQ	221_EXIT	1				1				1				0			
NXLOWQ	222_WRITE_STATION_TOTALS	19				4				2				462384			
NXLOWQ	222_EXIT	1				1				1				0			
NXLOWQ	230_WRITE_GRAND_TOTALS	12				2				1				78732			
NXLOWQ	230_EXIT	1				1				1				0			
NXLOWQ	300_WRAPUP	2				1				1				0			
NXLOWQ	300_EXIT	1				1				1				0			
NXLOWQ	700_READ_AND_ADD	18				3				2				139392			
NXLOWQ	700_READ_EXIT	1				1				1				0			
NXLOWQ	700_WRITE_TRAILER	6				2				1				7350			
NXLOWQ	700_WRITE_TRAILER_EXIT	1				1				1				0			
NXLOWQ	700_WRITE_HEADERS	8				6				1				2592			
NXLOWQ	700_WRITE_HEADERS_EXIT	1				1				1				0			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
NXLOWQ	700_ERROR_ROUTINE	6				1				1				0			
NXLOWQ	700_ERROR_ROUTINE_EXIT	1				1				1				0			
NXLPWQ	000_LP_DRIVER	13				6				2				37908			
NXLPWQ	000_STOP_RUN	1				1				1				0			
NXLPWQ	100_HSKP	18				2				1				1462050			
NXLPWQ	100_EXIT	1				1				1				0			
NXLPWQ	200_BUILD_REPORT	18				4				3				373248			
NXLPWQ	200_EXIT	1				1				1				0			
NXLPWQ	210_READ_LP_AKF	4				2				1				64			
NXLPWQ	210_EXIT	1				1				1				0			
NXLPWQ	220_PROCESS_REPORT_DATA	17				6				3				88128			
NXLPWQ	220_EXIT	1				1				1				0			
NXLPWQ	221_WRITE_APOD_LINE	14				3				2				83006			
NXLPWQ	221_EXIT	1				1				1				0			
NXLPWQ	222_WRITE_STATION_TOTALS	15				4				2				88935			
NXLPWQ	222_EXIT	1				1				1				0			
NXLPWQ	230_WRITE_GRAND_TOTALS	8				2				1				6272			
NXLPWQ	230_EXIT	1				1				1				0			
NXLPWQ	300_WRAPUP	2				1				1				0			
NXLPWQ	300_EXIT	1				1				1				0			
NXLPWQ	700_READ_AND_ADD	11				2				1				13475			
NXLPWQ	700_READ_EXIT	1				1				1				0			
NXLPWQ	700_WRITE_TRAILER	6				2				1				7350			
NXLPWQ	700_WRITE_TRAILER_EXIT	1				1				1				0			
NXLPWQ	700_WRITE_HEADERS	8				6				1				2592			
NXLPWQ	700_WRITE_HEADERS_EXIT	1				1				1				0			
NXLPWQ	700_ERROR_ROUTINE	6				1				1				0			
NXLPWQ	700_ERROR_ROUTINE_EXIT	1				1				1				0			
NXLZWQ	000_MAIN_DRIVER	13				12				2				40768			
NXLZWQ	000_CONTINUE	7				3				2				1008			
NXLZWQ	000_STOP	1				1				1				0			
NXLZWQ	100_HSKP	61				14				3				24985600			
NXLZWQ	100_EXIT	1				1				1				0			
NXLZWQ	110_LOAD_VALID_PORT_TABLE	10				4				3				2250			
NXLZWQ	110_EXIT	1				1				1				0			
NXLZWQ	200_L1_PROCESS	6				5				2				3456			
NXLZWQ	200_EXIT	1				1				1				0			
NXLZWQ	210_SEARCH_TABLE	5				4				2				180			
NXLZWQ	210_EXIT	1				1				1				0			
NXLZWQ	220_BUILD_MSG	26				10				4				842400			
NXLZWQ	220_EXIT	1				1				1				0			
NXLZWQ	300_Z4_PROCESS	25				15				4				302500			
NXLZWQ	300_EXIT	1				1				1				0			
NXLZWQ	310_CHECK_HISTORY	18				23				4				165888			
NXLZWQ	310_EXIT	1				1				1				0			
NXLZWQ	320_SEARCH_TABLE	5				4				2				180			
NXLZWQ	320_EXIT	1				1				1				0			
NXLZWQ	330_BUILD_ADAM_III_MSG	18				10				3				56448			
NXLZWQ	330_EXIT	1				1				1				0			
NXLZWQ	331_BUILD_ADAM3_410_MSG_TABLE	24				5				2				921984			
NXLZWQ	331_EXIT	1				1				1				0			
NXLZWQ	3311_BUILD_ADAM3_410_DELE_MSG	14				3				2				72576			
NXLZWQ	3311_EXIT	1				1				1				0			
NXLZWQ	340_BUILD_ASIF_MSG	17				10				3				166617			
NXLZWQ	340_EXIT	1				1				1				0			
NXLZWQ	341_BUILD_ASIF_410_MSG_TABLE	15				4				2				77760			
NXLZWQ	341_EXIT	1				1				1				0			
NXLZWQ	400_L7_PROCESS	24				18				3				290400			
NXLZWQ	400_EXIT	1				1				1				0			
NXLZWQ	410_SEARCH_TABLE	6				4				2				216			
NXLZWQ	410_EXIT	1				1				1				0			
NXLZWQ	420_BUILD_ADAM_III_MSG	18				9				3				56448			
NXLZWQ	420_EXIT	1				1				1				0			
NXLZWQ	421_BUILD_ADAM3_410_MSG_TABLE	24				5				2				921984			
NXLZWQ	421_EXIT	1				1				1				0			
NXLZWQ	4211_BUILD_ADAM3_410_DELE_MSG	14				3				2				72576			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
NXLZWQ	4211_EXIT	1				1				1				0			
NXLZWQ	430_BUILD_ASIF_MSG	17				9				3				137700			
NXLZWQ	430_EXIT	1				1				1				0			
NXLZWQ	431_BUILD_ASIF_410_MSG_TABLE	15				4				2				77760			
NXLZWQ	431_EXIT	1				1				1				0			
NXLZWQ	700_READ_MOVEMENT_FILE	9				4				2				1764			
NXLZWQ	700_READ_MOVEMENT_EXIT	1				1				1				0			
NXLZWQ	700_SEND_MESSAGE	38				10				2				3420000			
NXLZWQ	700_SEND_EXIT	1				1				1				0			
NXLZWQ	700_READ_AKF	7				3				2				5103			
NXLZWQ	700_READ_AKF_EXIT	1				1				1				0			
NXLZWQ	700_READ_ON_DEMAND_FILE	7				4				2				700			
NXLZWQ	700_READ_ON_DEMAND_FILE_EXIT	1				1				1				0			
NXLZWQ	700_READ_HISTORY_FILE	11				8				2				7436			
NXLZWQ	700_READ_HISTORY_EXIT	1				1				1				0			
NXLZWQ	700_EOF_PROCESS	8				4				3				2048			
NXLZWQ	700_EOF_EXIT	1				1				1				0			
NXM1WQ	000_DRIVER	5			7	2			3	1			2	80			700
NXM1WQ	000_EXIT	1			1	1			1	1			1	0			0
NXM1WQ	100_HOUSEKEEPING	6			7	2			3	1			2	3456			5488
NXM1WQ	100_EXIT	1			1	1			1	1			1	0			0
NXM1WQ	110_LOAD_ADAM_III_CONUS_TABLE	9			10	3			4	2			2	2025			3240
NXM1WQ	110_EXIT	1			1	1			1	1			1	0			0
NXM1WQ	200_PROCESS_LB	7			8	8			9	2			2	4375			7200
NXM1WQ	200_EXIT	1			1	1			1	1			1	0			0
NXM1WQ	300_AKF_SETTER	8			9	3			4	1			2	648			1296
NXM1WQ	300_EXIT	1			1	1			1	1			1	0			0
NXM1WQ	400_WRAPUP	2			3	1			2	1			2	0			0
NXM1WQ	400_EXIT	1			1	1			1	1			1	0			0
NXM1WQ	700_READ_LB_MOVEMENT	4			5	2			3	1			2	36			80
NXM1WQ	700_READ_LB_MOVEMENT_EXIT	1			1	1			1	1			1	0			0
NXM1WQ	700_LB_READ_WRITE	5			8	3			5	1			2	180			800
NXM1WQ	700_LB_READ_WRITE_EXIT	1			1	1			1	1			1	0			0
NXM1WQ	700_CHECK_ADAM_III_CONUS	5			6	3			4	1			2	500			864
NXM1WQ	700_CHECK_ADAM_III_CONUS_EXIT	1			1	1			1	1			1	0			0
NXMAWQ	000_MA_DRIVER	4				2				1				144			
NXMAWQ	000_STOP_RUN	1				1				1				0			
NXMAWQ	100_HSKP	19				2				1				2657644			
NXMAWQ	100_EXIT	1				1				1				0			
NXMAWQ	110_SELECT_INPUT	27				27				2				190512			
NXMAWQ	110_CONTINUE	2				2				1				2			
NXMAWQ	110_EXIT	1				1				1				0			
NXMAWQ	200_BUILD_REPORT	38				7				3				3108248			
NXMAWQ	200_EXIT	1				1				1				0			
NXMAWQ	700_COMPUTE_VALUES	2				2				1				72			
NXMAWQ	700_COMPUTE_VALUES_EXIT	1				1				1				0			
NXMAWQ	710_TYPE_PROC	2				2				1				32			
NXMAWQ	710_TYPE_PROC_EXIT	1				1				1				0			
NXMAWQ	711_CNTR_PROC	6				1				1				7350			
NXMAWQ	711_CNTR_PROC_EXIT	1				1				1				0			
NXMAWQ	700_READ_SORTED_FILE	7				2				1				1575			
NXMAWQ	700_READ_EXIT	1				1				1				0			
NXMAWQ	700_INCREMENT_COUNTERS	14				7				3				6174			
NXMAWQ	700_INC_EXIT	1				1				1				0			
NXMAWQ	701_ORG_LOOSE_SHPMTS	49				1				1				254016			
NXMAWQ	701_EXIT	1				1				1				0			
NXMAWQ	702_ORG_PALLETIZED_SHPMTS	49				1				1				254016			
NXMAWQ	702_EXIT	1				1				1				0			
NXMAWQ	703_INT_LOOSE_SHPMTS	49				1				1				254016			
NXMAWQ	703_EXIT	1				1				1				0			
NXMAWQ	704_INT_PALLETIZED_SHPMTS	49				1				1				254016			
NXMAWQ	704_EXIT	1				1				1				0			
NXMAWQ	705_TRM_LOOSE_SHPMTS	49				1				1				254016			
NXMAWQ	705_EXIT	1				1				1				0			
NXMAWQ	706_TRM_PALLETIZED_SHPMTS	49				1				1				254016			
NXMAWQ	706_EXIT	1				1				1				0			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts Baseline	October	Januaray	April	McCabe's CC Baseline	October	Januaray	April	Max Nest Baseline	October	Januaray	April	Information Flow Baseline	October	Januaray	April
NXMAWQ	700_WRITE_REPORT	90				7				2				10160640			
NXMAWQ	700_WRITE_REPORT_EXIT	1				1				1				0			
NXMAWQ	700_WRITE_TRAILER	6				2				1				3750			
NXMAWQ	700_WRITE_TRAILER_EXIT	1				1				1				0			
NXMAWQ	700_WRITE_HEADERS	5				4				1				720			
NXMAWQ	700_WRITE_HEADERS_EXIT	1				1				1				0			
NXMBWQ	000_MB_DRIVER	13		15		7		8		2		2		4212		11760	
NXMBWQ	000_STOP_RUN	1		1		1		1		1		1		0		0	
NXMBWQ	100_HSKP	24		25		3		4		1		2		9255384		11390625	
NXMBWQ	100_EXIT	1		1		1		1		1		1		0		0	
NXMBWQ	110_SELECT_INPUT	6		8		3		5		1		2		486		1152	
NXMBWQ	110_EXIT	1		1		1		1		1		1		0		0	
NXMBWQ	200_BUILD_REPORT	19		22		6		8		2		2		112651		301158	
NXMBWQ	200_EXIT	1		1		1		1		1		1		0		0	
NXMBWQ	210_TOTALS_TABLE_SEARCH	6		7		4		5		1		2		1350		2268	
NXMBWQ	210_EXIT	1		1		1		1		1		1		0		0	
NXMBWQ	220_UPDATE_TABLE	60		61		10		11		2		2		150000		184525	
NXMBWQ	220_EXIT	1		1		1		1		1		1		0		0	
NXMBWQ	230_FORMAT_DETAIL_LINE	23		24		1		2		1		2		5888828		6690816	
NXMBWQ	230_EXIT	1		1		1		1		1		1		0		0	
NXMBWQ	240_FORMAT_DELIM_LINE			24				2				2				6690816	
NXMBWQ	240_EXIT			1				1				1				0	
NXMBWQ	300_WRAP_UP	9		10		2		3		1		2		9216		16000	
NXMBWQ	300_EXIT	1		1		1		1		1		1		0		0	
NXMBWQ	310_UNLOAD_TABLE	13		14		2		3		1		2		29952		50400	
NXMBWQ	310_EXIT	1		1		1		1		1		1		0		0	
NXMBWQ	320_PORT_RECAP_PROCESS	10		11		2		3		1		2		7290		14256	
NXMBWQ	320_EXIT	1		1		1		1		1		1		0		0	
NXMBWQ	321_READ_SORTED_TABLE	10		11		3		4		2		2		4000		6875	
NXMBWQ	321_EXIT	1		1		1		1		1		1		0		0	
NXMBWQ	700_UPDATE_MAC_TOTALS	30		30		1		1		1		1		25947000		25947000	
NXMBWQ	700_UPDATE_MAC_TOTALS_EXIT	1		1		1		1		1		1		0		0	
NXMBWQ	700_COMPUTE	10		10		1		1		1		1		144000		144000	
NXMBWQ	700_COMPUTE_EXIT	1		1		1		1		1		1		0		0	
NXMBWQ	700_FORMAT	21		21		1		1		1		1		5376756		5376756	
NXMBWQ	700_FORMAT_EXIT	1		1		1		1		1		1		0		0	
NXMBWQ	700_WRITE_2	17		17		15		15		1		1		39168		39168	
NXMBWQ	700_WRITE_2_EXIT	1		1		1		1		1		1		0		0	
NXMBWQ	700_WRITE_TRAILER	6		6		2		2		1		1		3750		3750	
NXMBWQ	700_WRITE_TRAILER_EXIT	1		1		1		1		1		1		0		0	
NXMBWQ	700_WRITE_HEADINGS	8		8		6		6		1		1		1568		1568	
NXMBWQ	700_HEADINGS_EXIT	1		1		1		1		1		1		0		0	
NXMDWQ	000_MD_DRIVER	7				3				2				1008			
NXMDWQ	000_STOP_RUN	1				1				1				0			
NXMDWQ	100_HSKP	23				3				2				3942108			
NXMDWQ	100_EXIT	1				1				1				0			
NXMDWQ	200_BUILD_REPORT	17				17				2				22032			
NXMDWQ	200_EXIT	1				1				1				0			
NXMDWQ	210_PROCESS_RECORD	27				25				2				33075			
NXMDWQ	210_EXIT	1				1				1				0			
NXMDWQ	300_WRAPUP	10				6				2				40960			
NXMDWQ	300_EXIT	1				1				1				0			
NXMDWQ	310_SUM_PORT	8				3				2				9800			
NXMDWQ	310_EXIT	1				1				1				0			
NXMDWQ	320_PORT_TOTAL_TOTAL	7				3				2				4032			
NXMDWQ	320_EXIT	1				1				1				0			
NXMDWQ	330_TOTAL_HOLD_AVG	4				3				2				400			
NXMDWQ	330_EXIT	1				1				1				0			
NXMDWQ	340_PRINT_DETAIL	20				3				2				414720			
NXMDWQ	340_EXIT	1				1				1				0			
NXMDWQ	700_WRITE_HEADINGS	8				6				2				800			
NXMDWQ	700_WRITE_HEADINGS_EXIT	1				1				1				0			
NXMDWQ	700_WRITE_TRAILER	7				3				2				4375			
NXMDWQ	700_WRITE_TRAILER_EXIT	1				1				1				0			
NXMEWQ	000_CONTROL	8				3				2				1800			
NXMEWQ	000_EXIT	1				1				1				0			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts Baseline	October	Januaray	April	McCabe's CC Baseline	October	Januaray	April	Max Nest Baseline	October	Januaray	April	Information Flow Baseline	October	Januaray	April
NXMEWQ	100_HSKP	24				7				2				1247616			
NXMEWQ	100_EXIT	1				1				1				0			
NXMEWQ	105_INIT_AGCY_WT_TABLE	1				1				1				1			
NXMEWQ	105_EXIT	1				1				1				0			
NXMEWQ	110_LOAD_NAF_TABLE	17				8				3				88128			
NXMEWQ	110_EXIT	1				1				1				0			
NXMEWQ	120_LOAD_WEIGHT_TABLE	11				5				2				4851			
NXMEWQ	120_EXIT	1				1				1				0			
NXMEWQ	121_CARD_PROCESS	13				7				2				26325			
NXMEWQ	121_EXIT	1				1				1				0			
NXMEWQ	130_TRIGGER_DATA	19				3				2				1040364			
NXMEWQ	130_EXIT	1				1				1				0			
NXMEWQ	140_LOAD_MOD_TABLES	15				6				2				34560			
NXMEWQ	140_EXIT	1				1				1				0			
NXMEWQ	150_SORT	9				3				2				20736			
NXMEWQ	150_EXIT	1				1				1				0			
NXMEWQ	151_SELECT	40				17				2				8317440			
NXMEWQ	151_EXIT	1				1				1				0			
NXMEWQ	200_BUILD_REPORT	30				8				3				768000			
NXMEWQ	200_EXIT	1				1				1				0			
NXMEWQ	210_INCREMENT_COUNTERS	21				9				2				254100			
NXMEWQ	210_CONTINUE	1				1				1				0			
NXMEWQ	210_EXIT	1				1				1				0			
NXMEWQ	211_LOOSE_PROCESS	16				6				2				102400			
NXMEWQ	211_EXIT	1				1				1				0			
NXMEWQ	212_PLTZD_PROCESS	10				2				2				23040			
NXMEWQ	212_EXIT	1				1				1				0			
NXMEWQ	213_PLTZD_BY_OTHER_AGENCIES	17				9				2				382500			
NXMEWQ	213_EXIT	1				1				1				0			
NXMEWQ	214_UNRESTRICTED_PROCESS	12				3				2				37632			
NXMEWQ	214_EXIT	1				1				1				0			
NXMEWQ	215_RESTRICTED_PROCESS	12				3				2				37632			
NXMEWQ	215_EXIT	1				1				1				0			
NXMEWQ	220_CHANNEL_OUTPUT	46				6				2				12105774			
NXMEWQ	220_EXIT	1				1				1				0			
NXMEWQ	230_MFST_STN_OUTPUT	46				7				2				12105774			
NXMEWQ	230_CONTINUE	38				5				2				21888			
NXMEWQ	230_EXIT	1				1				1				0			
NXMEWQ	231_PLT_TRAIN_OUTPUT	12				6				2				27648			
NXMEWQ	231_EXIT	1				1				1				0			
NXMEWQ	2311_PLT_TRAIN_PROC	21				3				2				354900			
NXMEWQ	2311_EXIT	1				1				1				0			
NXMEWQ	2312_PLT_TRAIN_TOTAL_PROC	16				3				2				82944			
NXMEWQ	2312_EXIT	1				1				1				0			
NXMEWQ	232_LOOSE_CARGO_OUTPUT	9				5				2				5625			
NXMEWQ	232_EXIT	1				1				1				0			
NXMEWQ	2321_LOOSE_CARGO_PROC	25				5				2				270400			
NXMEWQ	2321_EXIT	1				1				1				0			
NXMEWQ	233_OTHER_AGENCY_OUTPUT	9				5				2				11664			
NXMEWQ	233_EXIT	1				1				1				0			
NXMEWQ	2331_OTHER_AGENCY_PROC	39				4				2				5281536			
NXMEWQ	2331_EXIT	1				1				1				0			
NXMEWQ	234_NAF_SEARCH	6				4				2				1176			
NXMEWQ	234_EXIT	1				1				1				0			
NXMEWQ	300_WRAPUP	10				3				2				25000			
NXMEWQ	300_EXIT	1				1				1				0			
NXMEWQ	310_21ST_AIR_FORCE_TOTAL	58				8				2				36934632			
NXMEWQ	310_EXIT	1				1				1				0			
NXMEWQ	311_PLT_TRAIN_PROC	23				4				2				470327			
NXMEWQ	311_EXIT	1				1				1				0			
NXMEWQ	312_PLT_TRAIN_TOTAL_PROC	16				3				2				82944			
NXMEWQ	312_EXIT	1				1				1				0			
NXMEWQ	313_LOOSE_CARGO_PROC	25				5				2				270400			
NXMEWQ	313_EXIT	1				1				1				0			
NXMEWQ	320_22ND_AIR_FORCE_TOTAL	55				8				2				35024220			
NXMEWQ	320_EXIT	1				1				1				0			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
NXMEWQ	321_PLT_TRAIN_PROC	23				4				2				470327			
NXMEWQ	321_EXIT	1				1				1				0			
NXMEWQ	322_PLT_TRAIN_TOTAL_PROC	16				3				2				82944			
NXMEWQ	322_EXIT	1				1				1				0			
NXMEWQ	323_LOOSE_CARGO_PROC	25				5				2				270400			
NXMEWQ	323_EXIT	1				1				1				0			
NXMEWQ	330_MAC_HEADQUARTERS_TOTAL	71				8				2				45213084			
NXMEWQ	330_EXIT	1				1				1				0			
NXMEWQ	331_PLT_TRAIN_PROC	23				4				2				470327			
NXMEWQ	331_EXIT	1				1				1				0			
NXMEWQ	332_PLT_TRAIN_TOTAL_PROC	16				3				2				82944			
NXMEWQ	332_EXIT	1				1				1				0			
NXMEWQ	333_LOOSE_CARGO_PROC	25				5				2				270400			
NXMEWQ	333_EXIT	1				1				1				0			
NXMEWQ	700_READ_SORTED_FILE	9				4				2				2916			
NXMEWQ	700_READ_EXIT	1				1				1				0			
NXMEWQ	700_WRITE_TRAILER	7				3				2				34300			
NXMEWQ	700_WRITE_TRAILER_EXIT	1				1				1				0			
NXMEWQ	700_WRITE_HEADERS	17				12				2				244800			
NXMEWQ	700_WRITE_HDRS_EXIT	1				1				1				0			
NXMFWQ	000_MF_DRIVER	6				3				2				384			
NXMFWQ	000_STOP_RUN	1				1				1				0			
NXMFWQ	100_HSKP	22				4				2				3843928			
NXMFWQ	100_EXIT	1				1				1				0			
NXMFWQ	110_SELECT_INPUT	18				12				2				27378			
NXMFWQ	110_EXIT	1				1				1				0			
NXMFWQ	200_BUILD_REPORT	23				4				2				957168			
NXMFWQ	200_EXIT	1				1				1				0			
NXMFWQ	210_MF_BREAKS	41				9				3				2501369			
NXMFWQ	210_EXIT	1				1				1				0			
NXMFWQ	220_DTL_PROCESS	31				25				2				24304			
NXMFWQ	220_EXIT	1				1				1				0			
NXMFWQ	230_GRAND_TOTALS	34				8				2				982600			
NXMFWQ	230_EXIT	1				1				1				0			
NXMFWQ	300_WRAPUP	5				2				2				0			
NXMFWQ	300_EXIT	1				1				1				0			
NXMFWQ	700_DTL_LINE_OUTPUT	65				9				2				1834560			
NXMFWQ	700_DTL_LINE_EXIT	1				1				1				0			
NXMFWQ	700_CHNL_TOTAL_OUTPUT	23				4				2				91287			
NXMFWQ	700_CHNL_TOTAL_EXIT	1				1				1				0			
NXMFWQ	700_SVC_TOTAL_OUTPUT	107				7				2				4629248			
NXMFWQ	700_SVC_TOTAL_EXIT	1				1				1				0			
NXMFWQ	700_STN_TOTAL_OUTPUT	23				4				2				72128			
NXMFWQ	700_STN_TOTAL_EXIT	1				1				1				0			
NXMFWQ	700_GRND_TOT_BY_SVC_OUTPUT	13				3				2				22932			
NXMFWQ	700_GRND_TOT_BY_SVC_EXIT	1				1				1				0			
NXMFWQ	700_GRND_TOTAL_OUTPUT	13				3				2				11700			
NXMFWQ	700_GRND_TOTAL_EXIT	1				1				1				0			
NXMFWQ	700_COMPUTE	3				3				2				1728			
NXMFWQ	700_COMPUTE_EXIT	1				1				1				0			
NXMFWQ	700_COMPUTE_TABLE	10				3				2				17640			
NXMFWQ	700_COMPUTE_TABLE_EXIT	1				1				1				0			
NXMFWQ	700_WRITE_HEADINGS	9				6				2				18225			
NXMFWQ	700_HEADINGS_EXIT	1				1				1				0			
NXMHWQ	000_CONTROL	15	16			2	2			2	2			24000	32400		
NXMHWQ	000_EXIT	1	1			1	1			1	1			0	0		
NXMHWQ	100_HSKP	18	18			4	4			2	2			209952	209952		
NXMHWQ	100_EXIT	1	1			1	1			1	1			0	0		
NXMHWQ	110_LOAD_NAF_TABLE	16	16			8	8			3	3			48400	48400		
NXMHWQ	110_EXIT	1	1			1	1			1	1			0	0		
NXMHWQ	120_TRIGGER_DATA	24	24			3	3			2	2			8871936	8871936		
NXMHWQ	120_EXIT	1	1			1	1			1	1			0	0		
NXMHWQ	130_SORT	8	8			3	3			2	2			12800	12800		
NXMHWQ	130_EXIT	1	1			1	1			1	1			0	0		
NXMHWQ	131_SELECT_INPUT	27	30			13	14			2	2			456300	711480		
NXMHWQ	131_EXIT	1	1			1	1			1	1			0	0		

B-29

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
NXMHWQ	200_AIR	21	21			8	8			2	2			170100	170100		
NXMHWQ	200_EXIT	1	1			1	1			1	1			0	0		
NXMHWQ	300_TRUCK	24	24			9	9			2	2			653400	653400		
NXMHWQ	300_EXIT	1	1			1	1			1	1			0	0		
NXMHWQ	400_MH_OUTPUT	13	13			2	2			2	2			269568	269568		
NXMHWQ	400_EXIT	1	1			1	1			1	1			0	0		
NXMHWQ	410_AIR_PROCESS	11	11			5	5			2	2			45056	45056		
NXMHWQ	410_EXIT	1	1			1	1			1	1			0	0		
NXMHWQ	411_STATION_PROCESS	47	47			9	9			2	2			31142012	31142012		
NXMHWQ	411_EXIT	1	1			1	1			1	1			0	0		
NXMHWQ	411A_STATION_COMPUTATION	42	42			7	7			2	2			1959552	1959552		
NXMHWQ	411A_EXIT	1	1			1	1			1	1			0	0		
NXMHWQ	420_AIR_TOTALS	92	117			13	17			2	2			248349308	635726637		
NXMHWQ	420_EXIT	1	1			1	1			1	1			0	0		
NXMHWQ	430_TRK_PROCESS	12	12			5	5			2	2			76800	76800		
NXMHWQ	430_EXIT	1	1			1	1			1	1			0	0		
NXMHWQ	431_STATION_PROCESS	47	47			9	9			2	2			31142012	31142012		
NXMHWQ	431_EXIT	1	1			1	1			1	1			0	0		
NXMHWQ	431A_STATION_COMPUTATION	21	21			4	4			2	2			244944	244944		
NXMHWQ	431A_EXIT	1	1			1	1			1	1			0	0		
NXMHWQ	440_TRK_TOTALS	58	81			9	11			2	2			51795450	170772624		
NXMHWQ	440_EXIT	1	1			1	1			1	1			0	0		
NXMHWQ	700_NAF_SEARCH	6	6			4	4			2	2			1536	1536		
NXMHWQ	700_NAF_SEARCH_EXIT	1	1			1	1			1	1			0	0		
NXMHWQ	700_AIR_HEADINGS	9	9			7	7			2	2			1764	1764		
NXMHWQ	700_AIR_EXIT	1	1			1	1			1	1			0	0		
NXMHWQ	700_TRK_HEADINGS	9	9			7	7			2	2			1764	1764		
NXMHWQ	700_TRK_EXIT	1	1			1	1			1	1			0	0		
NXMHWQ	700_AIR_TOTAL_HDRS	9	9			7	7			2	2			1296	1296		
NXMHWQ	700_AT_EXIT	1	1			1	1			1	1			0	0		
NXMHWQ	700_TRK_TOTAL_HDRS	9	9			7	7			2	2			1296	1296		
NXMHWQ	700_TT_EXIT	1	1			1	1			1	1			0	0		
NXMHWQ	710_MODULE_ID_PROCESS	19	19			9	9			2	2			822016	822016		
NXMHWQ	710_EXIT	1	1			1	1			1	1			0	0		
NXMHWQ	711_MODULE_ID_COMPUTATION	12	12			3	3			2	2			78732	78732		
NXMHWQ	711_EXIT	1	1			1	1			1	1			0	0		
NXMHWQ	720_MFST_REF_PROCESS	22	22			7	7			2	2			1627648	1627648		
NXMHWQ	720_EXIT	1	1			1	1			1	1			0	0		
NXMHWQ	721_MANIF_REF_COMPUTATION	17	17			6	6			2	2			108800	108800		
NXMHWQ	721_EXIT	1	1			1	1			1	1			0	0		
NXMHWQ	700_READ_AIR	4	4			3	3			2	2			144	144		
NXMHWQ	700_READ_AIR_EXIT	1	1			1	1			1	1			0	0		
NXMHWQ	700_READ_TRUCK	4	4			3	3			2	2			144	144		
NXMHWQ	700_READ_TRUCK_EXIT	1	1			1	1			1	1			0	0		
NXMHWQ	700_DETERMINE_TYPE	8	8			8	8			2	2			128	128		
NXMHWQ	700_TYPE_EXIT	1	1			1	1			1	1			0	0		
NXMIWQ	000_MI_CONTROL	5				2				1				180			
NXMIWQ	000_STOP_RUN	1				1				1				0			
NXMIWQ	100_HSKP	33				5				1				26492928			
NXMIWQ	100_EXIT	1				1				1				0			
NXMIWQ	110_SELECT_INPUT_1	22				14				2				228888			
NXMIWQ	110_EXIT	1				1				1				0			
NXMIWQ	120_SELECT_INPUT_2	22				14				2				228888			
NXMIWQ	120_EXIT	1				1				1				0			
NXMIWQ	130_SELECT_INPUT_3	21				14				2				134400			
NXMIWQ	130_EXIT	1				1				1				0			
NXMIWQ	200_BUILD_REPORT	21				6				2				365904			
NXMIWQ	200_CONTINUE	2				2				2				2			
NXMIWQ	200_EXIT	1				1				1				0			
NXMIWQ	210_DELIVERY_TERMS_PROC	23				4				2				1154048			
NXMIWQ	210_EXIT	1				1				1				0			
NXMIWQ	220_SERVICE_BRK_PROC	34				9				2				574600			
NXMIWQ	220_EXIT	1				1				1				0			
NXMIWQ	230_COUNTRY_BRK_PROC	19				5				2				147136			
NXMIWQ	230_EXIT	1				1				1				0			
NXMIWQ	240_PROCESS	9				4				2				11025			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts Baseline	October	Januaray	April	McCabe's CC Baseline	October	Januaray	April	Max Nest Baseline	October	Januaray	April	Information Flow Baseline	October	Januaray	April
NXMIWQ	240_EXIT	1				1				1				0			
NXMIWQ	300_WRAP_UP	61				10				2				4954725			
NXMIWQ	300_EXIT	1				1				1				0			
NXMIWQ	700_WRITE_HEADINGS	8				6				1				2592			
NXMIWQ	700_HEADINGS_EXIT	1				1				1				0			
NXMIWQ	700_WRITE_HEADINGS_F	6				4				1				216			
NXMIWQ	700_HEADINGS_F_EXIT	1				1				1				0			
NXMIWQ	700_WRITE_TRAILER	6				2				1				9600			
NXMIWQ	700_TRAILER_EXIT	1				1				1				0			
NXMIWQ	700_COUNTRY_SRCH	5				3				1				2420			
NXMIWQ	700_COUNTRY_SRCH_EXIT	1				1				1				0			
NXMIWQ	700_SERVICE_SRCH	5				3				1				980			
NXMIWQ	700_SERVICE_SRCH_EXIT	1				1				1				0			
NXMJWQ	000_MJ_CONTROL	11				4				2				13475			
NXMJWQ	000_EXIT	1				1				1				0			
NXMJWQ	100_HSKP	12				3				2				21168			
NXMJWQ	100_EXIT	1				1				1				0			
NXMJWQ	110_CURRENT_DATA	15				4				2				47040			
NXMJWQ	110_EXIT	1				1				1				0			
NXMJWQ	120_BUILD_CHNL_TABLE	5				2				1				720			
NXMJWQ	120_EXIT	1				1				1				0			
NXMJWQ	130_SORT	9				2				1				11664			
NXMJWQ	130_EXIT	1				1				1				0			
NXMJWQ	131_SELECT	42				18				2				1680000			
NXMJWQ	131_EXIT	1				1				1				0			
NXMJWQ	1311_CHNL_SEARCH	5				4				1				980			
NXMJWQ	1311_EXIT	1				1				1				0			
NXMJWQ	200_BUILD_REPORT	30				6				2				1285470			
NXMJWQ	200_EXIT	1				1				1				0			
NXMJWQ	210_CHNL_OUTPUT	3				2				1				675			
NXMJWQ	210_EXIT	1				1				1				0			
NXMJWQ	220_COMPUTE_TOTALS	15				3				1				365040			
NXMJWQ	220_EXIT	1				1				1				0			
NXMJWQ	230_WRITE_HEADERS	10				7				1				4410			
NXMJWQ	230_EXIT	1				1				1				0			
NXMJWQ	2301_FILL_HDRS_TRLR	17				1				1				2506752			
NXMJWQ	2301_EXIT	1				1				1				0			
NXMJWQ	240_WRITE_TOTAL_HEADERS	10				7				1				4410			
NXMJWQ	240_EXIT	1				1				1				0			
NXMJWQ	250_AGE_PROC	41				15				2				850176			
NXMJWQ	250_AGE_PROC_EXIT	1				1				1				0			
NXMJWQ	2501_CNTR_OUTPUT	6				1				1				7350			
NXMJWQ	2501_EXIT	1				1				1				0			
NXMJWQ	260_PROCESS	268				37				2				4669632			
NXMJWQ	260_PROCESS_EXIT	1				1				1				0			
NXMJWQ	300_WRAP_UP	24				1				1				1161600			
NXMJWQ	300_EXIT	1				1				1				0			
NXMJWQ	700_APOE_WORK	7				1				1				12348			
NXMJWQ	700_APOE_WORK_EXIT	1				1				1				0			
NXMJWQ	700_APOE_AVERAGE_TIMES	6				1				1				3750			
NXMJWQ	700_APOE_AVERAGE_TIMES_EXIT	1				1				1				0			
NXMJWQ	700_WRITE_TRAILER	6				2				1				7350			
NXMJWQ	700_WRITE_TRAILER_EXIT	1				1				1				0			
NXMPWQ	000_MP_DRIVER	7			9	2			3	2			2	112			900
NXMPWQ	000_STOP_RUN	1			1	1			1	1			1	0			0
NXMPWQ	100_HSKP	46			48	9			11	1			2	29292984			32039472
NXMPWQ	100_EXIT	1			1	1			1	1			1	0			0
NXMPWQ	105_LOAD_ADAM_III_TABLE	6			6	2			2	1			1	486			486
NXMPWQ	105_EXIT	1			1	1			1	1			1	0			0
NXMPWQ	110_PZ4_ORIGINATING_MONTH_FILE	26			27	16			17	2			2	531674			640332
NXMPWQ	110_CONTINUE	23			23	8			8	2			2	1868175			1868175
NXMPWQ	110_EXIT	1			1	1			1	1			1	0			0
NXMPWQ	120_PZ4_TERMINATING_MONTH_FILE	26			27	14			15	2			2	380666			470448
NXMPWQ	120_CONTINUE	24			27	8			10	2			2	2217984			3158028
NXMPWQ	120_EXIT	1			1	1			1	1			1	0			0
NXMPWQ	130_PZ3_OLD_MONTH_FILE	38			41	21			23	3			3	2318342			2771600

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts Baseline	October	Januaray	April	McCabe's CC Baseline	October	Januaray	April	Max Nest Baseline	October	Januaray	April	Information Flow Baseline	October	Januaray	April
NXMPWQ	130_CONTINUE	20			20	4			4	2			2	1458000			1458000
NXMPWQ	130_EXIT	1			1	1			1	1			1	0			0
NXMPWQ	200_CREATE_FILE_DRIVER	5			6	2			3	1			2	1620			2646
NXMPWQ	200_EXIT	1			1	1			1	1			1	0			0
NXMPWQ	210_CREATE_MINI_FILE_FOR_RPT	18			19	17			18	4			4	127008			157339
NXMPWQ	210_EXIT	1			1	1			1	1			1	0			0
NXMPWQ	211_ORIG_FOR_MINI_REC	31			34	24			27	2			2	1290096			1586304
NXMPWQ	211_EXIT	1			1	1			1	1			1	0			0
NXMPWQ	212_COMPUTE_PHTS	54			55	7			8	2			2	15283296			17248000
NXMPWQ	212_EXIT	1			1	1			1	1			1	0			0
NXMPWQ	300_WRAPUP	45			46	1			2	1			2	0			0
NXMPWQ	300_EXIT	1			1	1			1	1			1	0			0
NXMPWQ	700_READ	6			7	2			3	1			2	216			448
NXMPWQ	700_READ_EXIT	1			1	1			1	1			1	0			0
NXMPWQ	700_ADAM_III_CHECK	5			6	3			4	1			2	980			1536
NXMPWQ	700_ADAM_III_CHECK_EXIT	1			1	1			1	1			1	0			0
NXMPWQ	700_COMPUTE_HOURS	16			17	6			7	2			2	186624			220932
NXMPWQ	700_COMPUTE_HOURS_EXIT	1			1	1			1	1			1	0			0
NXMPWQ	700_WRITE_OVER_10_DAY	8			9	2			3	1			2	14112			21609
NXMPWQ	700_WRITE_OVER_10_DAY_EXIT	1			1	1			1	1			1	0			0
NXMPWQ	700_READ_MOVE	13			15	7			9	2			2	25168			34560
NXMPWQ	700_READ_MOVE_EXIT	1			1	1			1	1			1	0			0
NXMPWQ	700_ERROR_RTN	4			5	1			2	1			2	196			320
NXMPWQ	700_ERROR_RTN_EXIT	1			1	1			1	1			1	0			0
NXMQWQ	000_MQ_DRIVER	6				3				2				384			
NXMQWQ	000_STOP_RUN	1				1				1				0			
NXMQWQ	100_HSKP	24				4				2				10967424			
NXMQWQ	100_EXIT	1				1				1				0			
NXMQWQ	110_CREATE_SORTED_FILE	6				4				2				384			
NXMQWQ	110_EXIT	1				1				1				0			
NXMQWQ	200_PROCESS	12				6				2				12288			
NXMQWQ	200_EXIT	1				1				1				0			
NXMQWQ	300_WRAPUP	3				2				2				0			
NXMQWQ	300_EXIT	1				1				1				0			
NXMQWQ	700_READ_MOVE	28				9				2				2621808			
NXMQWQ	700_READ_MOVE_EXIT	1				1				1				0			
NXMQWQ	700_HEADERS	12				9				2				8748			
NXMQWQ	700_HEADERS_EXIT	1				1				1				0			
NXMQWQ	700_TRAILER	10				4				2				5760			
NXMQWQ	700_TRAILER_EXIT	1				1				1				0			
NXMRWQ	000_MR_DRIVER	12				6				2				15552			
NXMRWQ	000_STOP_RUN	1				1				1				0			
NXMRWQ	100_HSKP	19				4				2				2743600			
NXMRWQ	100_EXIT	1				1				1				0			
NXMRWQ	110_SELECT_TYPE_INPUT	77				38				2				14907200			
NXMRWQ	110_EXIT	1				1				1				0			
NXMRWQ	200_SELECT_INPUT	51				45				3				734400			
NXMRWQ	200_CONTINUE	3				3				2				27			
NXMRWQ	200_EXIT	1				1				1				0			
NXMRWQ	300_AREA_PRI_PROCESS	10				5				2				9000			
NXMRWQ	300_EXIT	1				1				1				0			
NXMRWQ	310_PROCESS_TOTALS	28				7				3				664048			
NXMRWQ	310_CONTINUE	8				4				2				2048			
NXMRWQ	310_EXIT	1				1				1				0			
NXMRWQ	400_WRAPUP	3				2				2				0			
NXMRWQ	400_EXIT	1				1				1				0			
NXMRWQ	700_CHANNEL_ACCUMULATION	37				9				3				37594368			
NXMRWQ	700_CHANNEL_ACCUMULATION_EXIT	1				1				1				0			
NXMRWQ	700_CREATE_CHANNEL_REPORT	99				25				2				172497600			
NXMRWQ	700_CREATE_CHANNEL_REPORT_EXIT	1				1				1				0			
NXMRWQ	700_CREATE_APOE_REPORT	72				17				2				28576800			
NXMRWQ	700_CREATE_APOE_REPORT_EXIT	1				1				1				0			
NXMRWQ	700_CREATE_FINAL_REPORT	70				17				2				30123520			
NXMRWQ	700_CREATE_FINAL_REPORT_EXIT	1				1				1				0			
NXMRWQ	700_TRAILER	9				3				2				11025			
NXMRWQ	700_TRAILER_EXIT	1				1				1				0			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts Baseline	October	Januaray	April	McCabe's CC Baseline	October	Januaray	April	Max Nest Baseline	October	Januaray	April	Information Flow Baseline	October	Januaray	April
NXMRWQ	700_ERROR_RTN	4				2				2				196			
NXMRWQ	700_ERROR_RTN_EXIT	1				1				1				0			
NXMSWQ	000_MS_DRIVER	6				3				2				384			
NXMSWQ	000_STOP_RUN	1				1				1				0			
NXMSWQ	100_HSKP	37				4				2				46247188			
NXMSWQ	100_EXIT	1				1				1				0			
NXMSWQ	110_READ_WRITE_SORT	6				4				2				384			
NXMSWQ	110_EXIT	1				1				1				0			
NXMSWQ	200_PROCESS	30				18				2				476280			
NXMSWQ	200_EXIT	1				1				1				0			
NXMSWQ	210_CONUS_OUT	31				13				4				1891279			
NXMSWQ	210_EXIT	1				1				1				0			
NXMSWQ	220_RETROGRADE	31				13				4				1891279			
NXMSWQ	220_EXIT	1				1				1				0			
NXMSWQ	230_INTRA_A	31				13				4				1891279			
NXMSWQ	230_EXIT	1				1				1				0			
NXMSWQ	240_INTRA_P	31				13				4				1891279			
NXMSWQ	240_EXIT	1				1				1				0			
NXMSWQ	300_WRAPUP	3				2				2				0			
NXMSWQ	300_EXIT	1				1				1				0			
NXMSWQ	700_READ	5				3				2				320			
NXMSWQ	700_READ_EXIT	1				1				1				0			
NXMSWQ	700_ACCUMULATION	177				75				2				1901915268			
NXMSWQ	700_ACCUMULATION_CONTINUE_1	172				73				2				549874368			
NXMSWQ	700_ACCUMULATION_CONTINUE_2	2				1				1				8			
NXMSWQ	700_ACCUMULATION_EXIT	0				0				0				0			
NXMSWQ	700_WRITE_PRIORITY_PAGE	47				24				2				23293952			
NXMSWQ	700_WRITE_PRIORITY_PAGE_EXIT	1				1				1				0			
NXMSWQ	700_WRITE_CHANNEL_PAGE	43				21				2				14266368			
NXMSWQ	700_WRITE_CHANNEL_PAGE_EXIT	1				1				1				0			
NXMSWQ	700_WRITE_AREA_PAGE	50				26				2				10351250			
NXMSWQ	700_WRITE_AREA_PAGE_EXIT	1				1				1				0			
NXMSWQ	700_WRITE_FINAL_REPORT	40				20				3				1713960			
NXMSWQ	700_WRITE_FINAL_REPORT_EXIT	1				1				1				0			
NXMSWQ	700_COMPUTE_PCT	459				40				2				2062929600			
NXMSWQ	700_COMPUTE_PCT_EXIT	1				1				1				0			
NXMSWQ	700_COMPUTE_PCT_A	326				21				2				626244696			
NXMSWQ	700_COMPUTE_PCT_A_EXIT	1				1				1				0			
NXMSWQ	700_COMPUTE_PCT_C	326				21				2				626244696			
NXMSWQ	700_COMPUTE_PCT_C_EXIT	1				1				1				0			
NXMSWQ	700_M_DAY	10				2				2				23040			
NXMSWQ	700_M_DAY_EXIT	1				1				1				0			
NXMSWQ	700_M_DAY_A	10				2				2				19360			
NXMSWQ	700_M_DAY_A_EXIT	1				1				1				0			
NXMSWQ	700_M_DAY_C	10				2				2				19360			
NXMSWQ	700_M_DAY_C_EXIT	1				1				1				0			
NXMSWQ	700_TRAILERS	9				4				2				26244			
NXMSWQ	700_TRAILERS_EXIT	1				1				1				0			
NXMTWQ	000_MT_DRIVER	8				3				2				512			
NXMTWQ	000_STOP_RUN	1				1				1				0			
NXMTWQ	100_HSKP	81				25				3				44475561			
NXMTWQ	100_EXIT	1				1				1				0			
NXMTWQ	105_LOAD_CHNL_TABLE	7				3				2				1008			
NXMTWQ	105_EXIT	1				1				1				0			
NXMTWQ	110_ORIGINATING_MONTH_PZ4	92				44				3				286276032			
NXMTWQ	110_EXIT	1				1				1				0			
NXMTWQ	120_TERMINATING_MONTH_PZ4	93				42				3				266246352			
NXMTWQ	120_EXIT	1				1				1				0			
NXMTWQ	130_PZ3_OLD_MONTH_FILE	101				45				3				373879376			
NXMTWQ	130_EXIT	1				1				1				0			
NXMTWQ	200_CREATE_FILE_DRIVER	7				3				2				16128			
NXMTWQ	200_EXIT	1				1				1				0			
NXMTWQ	210_CREATE_MINI_FILE_FOR_RPT	17				18				4				140777			
NXMTWQ	210_EXIT	1				1				1				0			
NXMTWQ	211_ORIG_FOR_MINI_REC	28				29				2				28672			
NXMTWQ	211_CONTINUE	7				1				1				5488			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts Baseline	October	January	April	McCabe's CC Baseline	October	January	April	Max Nest Baseline	October	January	April	Information Flow Baseline	October	January	April
NXMTWQ	211_EXIT	1				1				1				0			
NXMTWQ	212_COMPUTE_PHTS	60				8				2				36504000			
NXMTWQ	212_EXIT	1				1				1				0			
NXMTWQ	300_WRAPUP	59				2				2				0			
NXMTWQ	300_EXIT	1				1				1				0			
NXMTWQ	700_READ	7				3				2				448			
NXMTWQ	700_READ_EXIT	1				1				1				0			
NXMTWQ	700_CHNL_CHECK	8				4				2				12800			
NXMTWQ	700_CHNL_CHECK_EXIT	1				1				1				0			
NXMTWQ	700_COMPUTE_HOURS	26				10				4				1146600			
NXMTWQ	700_COMPUTE_HOURS_EXIT	1				1				1				0			
NXMTWQ	700_READ_MOVE	14				8				2				32256			
NXMTWQ	700_READ_MOVE_EXIT	1				1				1				0			
NXP4WQ	000_DRIVER	4				2				1				36			
NXP4WQ	000_EXIT	1				1				1				0			
NXP4WQ	100_HSKP	2				1				1				0			
NXP4WQ	100_EXIT	1				1				1				0			
NXP4WQ	200_READ_WRITE	7				3				1				1008			
NXP4WQ	200_EXIT	1				1				1				0			
NXP4WQ	300_WRAPUP	3				1				1				0			
NXP4WQ	300_EXIT	1				1				1				0			
NXPAWQ	000_MAIN_DRIVER	8				1				1				0			
NXPAWQ	000_MAIN_LOOP	10				6				2				2250			
NXPAWQ	000_EXIT	1				1				1				0			
NXPAWQ	100_I_CALL	4				1				1				256			
NXPAWQ	100_EXIT	1				1				1				0			
NXPAWQ	200_TYPE_INPUT_SELECT	13				6				2				1872			
NXPAWQ	200_EXIT	1				1				1				0			
NXPAWQ	210_MINI_INPUT	7				5				2				252			
NXPAWQ	210_EXIT	1				1				1				0			
NXPAWQ	220_PPAL_INPUT	7				5				2				448			
NXPAWQ	220_EXIT	1				1				1				0			
NXPAWQ	230_CRT_INPUT	9				4				2				324			
NXPAWQ	230_EXIT	1				1				1				0			
NXPAWQ	240_CARDXA_INPUT	16				9				2				10000			
NXPAWQ	240_EXIT	1				1				1				0			
NXPAWQ	300_NULL_CALL	5				3				2				245			
NXPAWQ	300_EXIT	1				1				1				0			
NXPAWQ	400_PROGRAM_SELECT	27				5				2				139968			
NXPAWQ	400_EXIT	1				1				1				0			
NXPAWQ	900_WRAPUP	1				1				1				16			
NXPAWQ	900_EXIT	1				1				1				0			
NXPBWQ	000_DRIVER	3				1				1				0			
NXPBWQ	000_STOP	1				1				1				0			
NXPBWQ	100_HSKP	7				3				1				4032			
NXPBWQ	100_EXIT	1				1				1				0			
NXPBWQ	110_READ_STATION_TO_SORT	6				3				1				216			
NXPBWQ	110_EXIT	1				1				1				0			
NXPBWQ	120_WRITE_REC_BACK	6				3				1				216			
NXPBWQ	120_EXIT	1				1				1				0			
NXPBWQ	200_WRAPUP	2				1				1				0			
NXPBWQ	200_EXIT	1				1				1				0			
NXPCWQ	000_DRIVER	7				2				2				175			
NXPCWQ	000_EXIT	1				1				1				0			
NXPCWQ	100_INTITIALIZE	6				1				1				1536			
NXPCWQ	100_EXIT	1				1				1				0			
NXPCWQ	200_SET_ARGS	4				1				1				64			
NXPCWQ	200_EXIT	1				1				1				0			
NXPCWQ	300_CALL_RCOMC	2				1				1				50			
NXPCWQ	300_EXIT	1				1				1				0			
NXPCWQ	400_CHECK_ERROR	9				3				2				324			
NXPCWQ	400_EXIT	1				1				1				0			
NXPCWQ	410_CHECK_STATIS	11				8				2				396			
NXPCWQ	410_EXIT	1				1				1				0			
NXPCWQ	500_BOJ_CALL	8				2				2				18432			
NXPCWQ	500_EXIT	1				1				1				0			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts Baseline	October	Januaray	April	McCabe's CC Baseline	October	Januaray	April	Max Nest Baseline	October	Januaray	April	Information Flow Baseline	October	Januaray	April
NXPDWQ	000_MAIN_DRIVER	11				6				2				1584			
NXPDWQ	000_EXIT_PROGRAM	1				1				1				0			
NXPDWQ	100_HSKP	16				3				2				112896			
NXPDWQ	100_EXIT	1				1				1				0			
NXPDWQ	200_PROCESS_MESSAGE	29				24				2				1254656			
NXPDWQ	200_EXIT	1				1				1				0			
NXPDWQ	210_MESSAGE_HSKP	23				7				2				2070000			
NXPDWQ	210_EXIT	1				1				1				0			
NXPDWQ	220_PROCESS_HISTORICAL_PV_DATA	5				7				2				720			
NXPDWQ	220_EXIT	1				1				1				0			
NXPDWQ	221_GETT_CHECK_PROCESS_HEADER	42				8				2				40832232			
NXPDWQ	221_EXIT	1				1				1				0			
NXPDWQ	222_GETT_CHECK_PROCESS_DETAIL	61				17				2				211489684			
NXPDWQ	222_EXIT	1				1				1				0			
NXPDWQ	230_PROCESS_HISTORICAL_PY_DATA	5				7				2				720			
NXPDWQ	230_EXIT	1				1				1				0			
NXPDWQ	231_GETT_CHECK_PROCESS_HEADER	42				8				2				40832232			
NXPDWQ	231_EXIT	1				1				1				0			
NXPDWQ	232_GETT_CHECK_PROCESS_DETAIL	61				17				2				211489684			
NXPDWQ	232_EXIT	1				1				1				0			
NXPDWQ	240_PROCESS_DAILY_DATA	4				4				2				256			
NXPDWQ	240_EXIT	1				1				1				0			
NXPDWQ	241_RETRIEVE_K1_TCMD_RECORD	40				19				2				7225000			
NXPDWQ	241_EXIT	1				1				1				0			
NXPDWQ	242_RETRIEVE_K1_TAA_RECORD	72				12				2				755827200			
NXPDWQ	242_EXIT	1				1				1				0			
NXPDWQ	250_PROCESS_ON_HAND_DATA	105				40				2				1585604580			
NXPDWQ	250_EXIT	1				1				1				0			
NXPDWQ	260_PROCESS_HISTORICAL_CV_DATA	5				7				2				720			
NXPDWQ	260_EXIT	1				1				1				0			
NXPDWQ	261_GETT_CHECK_PROCESS_HEADER	42				8				2				40832232			
NXPDWQ	261_EXIT	1				1				1				0			
NXPDWQ	262_GETT_CHECK_PROCESS_DETAIL	61				17				2				211489684			
NXPDWQ	262_EXIT	1				1				1				0			
NXPDWQ	270_PROCESS_DAILY_COMM_DATA	4				4				2				256			
NXPDWQ	270_EXIT	1				1				1				0			
NXPDWQ	271_RETRIEVE_M1_TCMD_RECORD	40				19				2				7225000			
NXPDWQ	271_EXIT	1				1				1				0			
NXPDWQ	272_RETRIEVE_M1_TAA_RECORD	72				12				2				755827200			
NXPDWQ	272_EXIT	1				1				1				0			
NXPDWQ	280_FILE_LOCKED_ROUTINE	14				5				2				8064			
NXPDWQ	280_EXIT	1				1				1				0			
NXPDWQ	300_WRAPUP	8				2				2				14112			
NXPDWQ	300_EXIT	1				1				1				0			
NXPDWQ	700_SEND_MESSAGE	36				6				2				4769856			
NXPDWQ	700_SEND_MESSAGE_EXIT	1				1				1				0			
NXPDWQ	700_MULTI_PART_ROUTINE	8				1				1				51200			
NXPDWQ	700_MULTI_EXIT	1				1				1				0			
NXPDWQ	700_ERROR_DUMP	5				1				1				0			
NXPDWQ	700_ERROR_DUMP_EXIT	1				1				1				0			
NXPEWQ	000_MAIN_DRIVER	12				6				2				1728			
NXPEWQ	000_EXIT_PROGRAM	1				1				1				0			
NXPEWQ	100_HSKP	24				4				2				470400			
NXPEWQ	100_EXIT	1				1				1				0			
NXPEWQ	200_PROCESS_MESSAGE	30				23				2				1140750			
NXPEWQ	200_EXIT	1				1				1				0			
NXPEWQ	210_MESSAGE_HSKP	25				7				2				2640625			
NXPEWQ	210_EXIT	1				1				1				0			
NXPEWQ	220_PROCESS_HISTORICAL_PV_DATA	6				7				2				864			
NXPEWQ	220_EXIT	1				1				1				0			
NXPEWQ	221_GETT_CHECK_PROCESS_HEADER	44				8				2				42776624			
NXPEWQ	221_EXIT	1				1				1				0			
NXPEWQ	222_GETT_CHECK_PROCESS_DETAIL	64				17				2				221890816			
NXPEWQ	222_EXIT	1				1				1				0			
NXPEWQ	230_PROCESS_HISTORICAL_PY_DATA	6				7				2				864			
NXPEWQ	230_EXIT	1				1				1				0			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts Baseline	October	Januaray	April	McCabe's CC Baseline	October	Januaray	April	Max Nest Baseline	October	Januaray	April	Information Flow Baseline	October	Januaray	April
NXPEWQ	231_GETT_CHECK_PROCESS_HEADER	44				8				2				42776624			
NXPEWQ	231_EXIT	1				1				1				0			
NXPEWQ	232_GETT_CHECK_PROCESS_DETAIL	64				17				2				221890816			
NXPEWQ	232_EXIT	1				1				1				0			
NXPEWQ	240_PROCESS_DAILY_DATA	5				4				2				320			
NXPEWQ	240_EXIT	1				1				1				0			
NXPEWQ	241_RETRIEVE_K1_TCMD_RECORD	45				19				2				9856080			
NXPEWQ	241_EXIT	1				1				1				0			
NXPEWQ	242_RETRIEVE_K1_TAA_RECORD	75				12				2				844201875			
NXPEWQ	242_EXIT	1				1				1				0			
NXPEWQ	250_PROCESS_ON_HAND_DATA	108				40				2				1687630572			
NXPEWQ	250_EXIT	1				1				1				0			
NXPEWQ	260_PROCESS_HISTORICAL_CV_DATA	6				7				2				864			
NXPEWQ	260_EXIT	1				1				1				0			
NXPEWQ	261_GETT_CHECK_PROCESS_HEADER	44				8				2				42776624			
NXPEWQ	261_EXIT	1				1				1				0			
NXPEWQ	262_GETT_CHECK_PROCESS_DETAIL	64				17				3				221890816			
NXPEWQ	262_EXIT	1				1				1				0			
NXPEWQ	270_PROCESS_DAILY_COMM_DATA	5				4				2				320			
NXPEWQ	270_EXIT	1				1				1				0			
NXPEWQ	271_RETRIEVE_M1_TCMD_RECORD	45				19				2				9856080			
NXPEWQ	271_EXIT	1				1				1				0			
NXPEWQ	272_RETRIEVE_M1_TAA_RECORD	75				12				2				844201875			
NXPEWQ	272_EXIT	1				1				1				0			
NXPEWQ	280_FILE_LOCKED_ROUTINE	15				5				2				8640			
NXPEWQ	280_EXIT	1				1				1				0			
NXPEWQ	300_WRAPUP	24				3				2				743424			
NXPEWQ	300_EXIT	1				1				1				0			
NXPEWQ	700_SEND_MESSAGE	50				5				2				7144200			
NXPEWQ	700_SEND_MESSAGE_EXIT	1				1				1				0			
NXPEWQ	700_MULTI_PART_ROUTINE	9				1				1				57600			
NXPEWQ	700_MULTI_EXIT	1				1				1				0			
NXPEWQ	700_ERROR_DUMP	6				1				1				0			
NXPEWQ	700_ERROR_DUMP_EXIT	1				1				1				0			
NXPFWQ	000_MAIN_DRIVER	2				1				1				0			
NXPFWQ	000_EXIT	1				1				1				0			
NXPFWQ	100_SEND_CRT_SCREEN	14				2				2				72576			
NXPFWQ	100_EXIT	1				1				1				0			
NXPHWQ	000_DRIVER	3				1				1				0			
NXPHWQ	000_EXIT	1				1				1				0			
NXPHWQ	100_SET_O_CALL	8				2				2				10368			
NXPHWQ	100_EXIT	1				1				1				0			
NXPHWQ	110_SIGN_OFF_CALLS	18				6				2				56448			
NXPHWQ	110_EXIT	1				1				1				0			
NXPHWQ	200_CHECK_ERROR	7				3				2				112			
NXPHWQ	200_EXIT	1				1				1				0			
NXPJWQ	000_DRIVER	4				1				1				0			
NXPJWQ	000_EXIT	1				1				1				0			
NXPJWQ	100_INTITIALIZE	11				1				1				45056			
NXPJWQ	100_EXIT	1				1				1				0			
NXPJWQ	200_CONTROL	53				15				2				2270997			
NXPJWQ	200_EXIT	1				1				1				0			
NXPJWQ	210_STARS_DISPLAY	10				5				2				0			
NXPJWQ	210_EXIT	1				1				1				0			
NXPJWQ	220_CALL_T_PROGRAMMER	1				1				1				0			
NXPJWQ	220_EXIT	1				1				1				0			
NXPJWQ	300_RKILL	1				1				1				25			
NXPJWQ	300_EXIT	1				1				1				0			
NXPKWQ	000_EOD_CONTROL	8				5				2				800			
NXPKWQ	000_CONTINUE	6				3				2				4704			
NXPKWQ	000_STOP_RUN	1				1				1				0			
NXPKWQ	100_EOD_HSKP	15				3				2				121500			
NXPKWQ	100_EXIT	1				1				1				0			
NXPKWQ	200_PROCESS_ADAM3_RECS	36				9				2				2073600			
NXPKWQ	200_EXIT	1				1				1				0			
NXPKWQ	300_PROCESS_NON_ADAM3_RECS	34				9				2				1645600			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts Baseline	October	Januaray	April	McCabe's CC Baseline	October	Januaray	April	Max Nest Baseline	October	Januaray	April	Information Flow Baseline	October	Januaray	April
NXPKWQ	300_EXIT	1				1				1				0			
NXPKWQ	400_WRITE_SEQ_FROM_SORT	3				2				1				48			
NXPKWQ	400_EXIT	1				1				1				0			
NXPKWQ	410_READ_WRITE	19				12				2				6156			
NXPKWQ	410_CONTINUE	2				2				1				8			
NXPKWQ	410_EXIT	1				1				1				0			
NXPKWQ	500_WRAPUP	36				4				2				2509056			
NXPKWQ	500_EXIT	1				1				1				0			
NXPKWQ	700_ERROR_DISPLAY	7				1				1				1008			
NXPKWQ	700_ERROR_DISPLAY_EXIT	1				1				1				0			
NXPLWQ	000_DRIVER	23				9				2				476928			
NXPLWQ	000_STOP	1				1				1				0			
NXPLWQ	100_HSKP	51				6				2				11897739			
NXPLWQ	100_EXIT	1				1				1				0			
NXPLWQ	110_LOAD_RG3_TABLE	9				3				2				2304			
NXPLWQ	110_EXIT	1				1				1				0			
NXPLWQ	200_PROCESS_LIFT_NOTICE_RECS	48				10				2				14945472			
NXPLWQ	200_EXIT	1				1				1				0			
NXPLWQ	210_GETT_PROCESS_RECDS_ON_MFST	46				12				2				10731294			
NXPLWQ	210_EXIT	1				1				1				0			
NXPLWQ	300_PROCESS_NON_ADAM_III	45				10				2				9688320			
NXPLWQ	300_EXIT	1				1				1				0			
NXPLWQ	310_GETT_PROCESS_RECDS_ON_MFST	45				12				2				11250000			
NXPLWQ	310_EXIT	1				1				1				0			
NXPLWQ	400_CREATE_NEW_RG3_TABLE	5				2				1				320			
NXPLWQ	400_EXIT	1				1				1				0			
NXPLWQ	500_WRAPUP	41				7				2				2057216			
NXPLWQ	500_CONTINUE	26				2				2				2023866			
NXPLWQ	500_EXIT	1				1				1				0			
NXPLWQ	700_UPDATE_RG3_TABLE	13				3				3				22932			
NXPLWQ	700_UPDATE_EXIT	1				1				1				0			
NXPLWQ	700_ADAM_III_CHECK	6				4				1				864			
NXPLWQ	700_ADAM_III_CHECK_EXIT	1				1				1				0			
NXPLWQ	700_DETERMINE_SSCO_WRITE_REC	57				12				3				2659392			
NXPLWQ	700_EXIT	1				1				1				0			
NXPLWQ	700_ERROR_DUMP	5				1				1				405			
NXPLWQ	700_ERROR_DUMP_EXIT	1				1				1				0			
NXPLWQ	700_EOO	11				2				2				57024			
NXPLWQ	700_EOO_EXIT	1				1				1				0			
NXPMWQ	000_DRIVER	5	5			4	4			2	2			20	20		
NXPMWQ	000_EXIT	1	1			1	1			1	1			0	0		
NXPMWQ	100_R_SPAWN_RG	26	26			1	1			1	1			239616	239616		
NXPMWQ	100_EXIT	1	1			1	1			1	1			0	0		
NXPMWQ	200_PROGRAM_SELECT	11	11			4	4			2	2			1584	1584		
NXPMWQ	200_EXIT	1	1			1	1			1	1			0	0		
NXPMWQ	210_R_SPAWN_RQ	16	16			2	2			2	2			97344	97344		
NXPMWQ	210_EXIT	1	1			1	1			1	1			0	0		
NXPMWQ	211_ALLOCATE_YESTERDAY_FILE	5	11			5	8			2	2			3645	39600		
NXPMWQ	211_EXIT	1	1			1	1			1	1			0	0		
NXPMWQ	212_GET_REPLACE_CONTROL_RECORD	46	46			5	5			2	2			12105774	12105774		
NXPMWQ	212_EXIT	1	1			1	1			1	1			0	0		
NXPMWQ	213_RELEASE_YESTERDAY_FILE	3	3			1	1			1	1			768	768		
NXPMWQ	213_EXIT	1	1			1	1			1	1			0	0		
NXPMWQ	220_R_SPAWN_PL	9	9			1	1			1	1			18225	18225		
NXPMWQ	220_EXIT	1	1			1	1			1	1			0	0		
NXPMWQ	230_R_SPAWN_R2	9	9			1	1			1	1			18225	18225		
NXPMWQ	230_EXIT	1	1			1	1			1	1			0	0		
NXPMWQ	240_R_SPAWN_R3	9	9			1	1			1	1			18225	18225		
NXPMWQ	240_EXIT	1	1			1	1			1	1			0	0		
NXPMWQ	700_EOO	7	7			2	2			2	2			7168	7168		
NXPMWQ	700_EOO_EXIT	1	1			1	1			1	1			0	0		
NXPMWQ	700_CHECK_R_SPAWN_ERR	5	5			4	4			2	2			720	720		
NXPMWQ	700_CHECK_R_ERR_EXIT	1	1			1	1			1	1			0	0		
NXPMWQ	710_RWAIT	3	3			1	1			1	1			432	432		
NXPMWQ	710_RWAIT_EXIT	1	1			1	1			1	1			0	0		
NXPMWQ	700_ADDFIL_ERROR_CHECK	11	11			3	3			2	2			33275	33275		

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts Baseline	October	Januaray	April	McCabe's CC Baseline	October	Januaray	April	Max Nest Baseline	October	Januaray	April	Information Flow Baseline	October	Januaray	April
NXPMWQ	700_ADDFIL_ERROR_CHECK_EXIT	1	1			1	1			1	1			0	0		
NXPNWQ	000_EOD_CONTROL	37				15				2				8739252			
NXPNWQ	000_STOP_RUN	1				1				1				0			
NXPNWQ	100_EOD_HSKP	67				12				3				49322988			
NXPNWQ	100_EXIT	1				1				1				0			
NXPNWQ	110_LOAD_PGM_T1_TABLE	17				8				3				100793			
NXPNWQ	110_EXIT	1				1				1				0			
NXPNWQ	120_LOAD_VALID_PORT_TABLE	5				2				1				405			
NXPNWQ	120_EXIT	1				1				1				0			
NXPNWQ	130_READ_SEQ_PA_FILE	6				3				2				54			
NXPNWQ	130_EXIT	1				1				1				0			
NXPNWQ	200_GET_AND_WRITE_DELETES	36				15				3				627264			
NXPNWQ	200_EXIT	1				1				1				0			
NXPNWQ	210_DELETE_OR_ABORT_PROC	42				9				3				25552800			
NXPNWQ	210_EXIT	1				1				1				0			
NXPNWQ	220_PROCESS_DELETED_TCMD	58				8				2				177219232			
NXPNWQ	220_EXIT	1				1				1				0			
NXPNWQ	250_SORT	10				4				2				6250			
NXPNWQ	250_EXIT	1				1				1				0			
NXPNWQ	300_GETT_AND_WRITE_LFS	78				23				2				337459200			
NXPNWQ	300_EXIT	1				1				1				0			
NXPNWQ	310_GETT_L_REC	18				8				2				56448			
NXPNWQ	310_EXIT	1				1				1				0			
NXPNWQ	311_TAB_PROCESS	50				7				3				98560800			
NXPNWQ	311_EXIT	1				1				1				0			
NXPNWQ	312_TCMD_PROCESS	90				21				3				876096000			
NXPNWQ	312_EXIT	1				1				1				0			
NXPNWQ	400_PROCESS_K1_HOLD_FILE	18				11				3				176418			
NXPNWQ	400_EXIT	1				1				1				0			
NXPNWQ	500_PROCESS_PN9_SEQUENCE_FILE	31				9				3				135036			
NXPNWQ	500_EXIT	1				1				1				0			
NXPNWQ	800_WRAPUP_DRIVER	6				2				2				384			
NXPNWQ	800_EXIT	1				1				1				0			
NXPNWQ	810_WRAP_UP	12				7				2				1728			
NXPNWQ	810_EXIT	1				1				1				0			
NXPNWQ	820_CLOSE	28				5				2				681408			
NXPNWQ	820_EXIT	1				1				1				0			
NXPNWQ	830_EOO_NEXT	21				3				2				472500			
NXPNWQ	830_EXIT	1				1				1				0			
NXPNWQ	700_RSPAWN_PZ	29				7				3				424589			
NXPNWQ	700_RSPAWN_PZ_EXIT	1				1				1				0			
NXPNWQ	700_WRITE_AUTODIN_HEADERS	13				4				2				39325			
NXPNWQ	700_WRITE_AUTODIN_HEADERS_EXIT	1				1				1				0			
NXPNWQ	700_COMPUTE_HOURS	11				5				2				45056			
NXPNWQ	700_COMPUTE_HOURS_EXIT	1				1				1				0			
NXPNWQ	700_SEARCH_T1_TABLE	7				4				2				4032			
NXPNWQ	700_SEARCH_T1_EXIT	1				1				1				0			
NXPNWQ	700_CHECK_VALID_PORT_TBL	5				4				2				1280			
NXPNWQ	700_CHECK_VALID_EXIT	1				1				1				0			
NXPNWQ	700_READ_HOST	4				3				2				100			
NXPNWQ	700_READ_HOST_EXIT	1				1				1				0			
NXPNWQ	700_READ_SORTED_LFS	4				3				2				400			
NXPNWQ	700_READ_SORTED_LFS_EXIT	1				1				1				0			
NXPNWQ	700_READ_K1_HOLD_FILE	9				4				2				5184			
NXPNWQ	700_READ_K1_HOLD_FILE_EXIT	1				1				1				0			
NXPNWQ	700_HIGH_WEIGHT_ROUTINE	15				6				3				91260			
NXPNWQ	700_HIGH_WEIGHT_ROUTINE_EXIT	1				1				1				0			
NXPNWQ	700_SPECIAL_PRI	33				32				2				1617			
NXPNWQ	700_SPECIAL_PRI_EXIT	1				1				1				0			
NXPNWQ	700_ERROR_DISPLAY	14				3				2				22400			
NXPNWQ	700_ERROR_DISPLAY_EXIT	1				1				1				0			
NXPNWQ	700_SW28_RTN	7				3				2				1372			
NXPNWQ	700_SW28_RTN_EXIT	1				1				1				0			
NXPPWQ	000_DRIVER	15				8				2				10935			
NXPPWQ	000_EXIT	1				1				1				0			
NXPPWQ	100_HSKP	51				6				2				6247500			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts Baseline	October	Januaray	April	McCabe's CC Baseline	October	Januaray	April	Max Nest Baseline	October	Januaray	April	Information Flow Baseline	October	Januaray	April
NXPPWQ	100_EXIT	1				1				1				0			
NXPPWQ	110_LOAD_PGM_T1_TABLE	18				9				3				78408			
NXPPWQ	110_EXIT	1				1				1				0			
NXPPWQ	200_PROCESS_ADAM_III_INPUT	47				25				3				3325532			
NXPPWQ	200_EXIT	1				1				1				0			
NXPPWQ	210_PROCESS_TAB_RECORD	57				14				2				101130768			
NXPPWQ	210_EXIT	1				1				1				0			
NXPPWQ	220_PROCESS_TCMD_RECORD	134				45				3				2620247256			
NXPPWQ	220_CONTINUE	23				8				3				365148			
NXPPWQ	220_EXIT	1				1				1				0			
NXPPWQ	500_WRAPUP	45				5				2				6635520			
NXPPWQ	500_EXIT	1				1				1				0			
NXPPWQ	600_SPAWN_L0	45				6				2				4023045			
NXPPWQ	600_EXIT	1				1				1				0			
NXPPWQ	610_RSPAWN_COUNTER	18				6				3				45000			
NXPPWQ	610_EXIT	1				1				1				0			
NXPPWQ	700_COMPUTE_DATE_HR	16				6				2				40000			
NXPPWQ	700_COMPUTE_DATE_HR_EXIT	1				1				1				0			
NXPPWQ	700_HIGH_WEIGHT_ROUTINE	14				5				2				72576			
NXPPWQ	700_HIGH_WEIGHT_ROUTINE_EXIT	1				1				1				0			
NXPPWQ	700_EDIT_DETAIL	11				15				3				1100			
NXPPWQ	700_EDIT_DETAIL_EXIT	1				1				1				0			
NXPPWQ	700_SEARCH_T1_TABLE	7				4				2				2268			
NXPPWQ	700_SEARCH_T1_EXIT	1				1				1				0			
NXPPWQ	700_READ_HOST	4				3				2				256			
NXPPWQ	700_READ_HOST_EXIT	1				1				1				0			
NXPPWQ	700_SPECIAL_PRI	33				32				2				1617			
NXPPWQ	700_SPECIAL_PRI_EXIT	1				1				1				0			
NXPPWQ	700_ERROR_DUMP	14				3				2				22400			
NXPPWQ	700_EXIT_ERROR_DUMP	1				1				1				0			
NXPQWQ	000_EOD_CONTROL	8				5				2				800			
NXPQWQ	000_CONTINUE	4				2				2				36			
NXPQWQ	000_STOP_RUN	1				1				1				0			
NXPQWQ	100_EOD_HSKP	11				2				2				34496			
NXPQWQ	100_EXIT	1				1				1				0			
NXPQWQ	200_PROCESS_ADAM_III	25				7				2				518400			
NXPQWQ	200_EXIT	1				1				1				0			
NXPQWQ	300_PROCESS_NON_ADAM_III	25				7				2				409600			
NXPQWQ	300_EXIT	1				1				1				0			
NXPQWQ	400_EOO_NEXT	19				2				2				260091			
NXPQWQ	400_EXIT	1				1				1				0			
NXPQWQ	500_CLOSE	7				2				2				700			
NXPQWQ	500_EXIT	1				1				1				0			
NXPQWQ	700_ERROR_DISPLAY	6				1				1				0			
NXPQWQ	700_ERROR_DISPLAY_EXIT	1				1				1				0			
NXPRWQ	000_IDC_CONTROL_DRIVER	4				2				1				36			
NXPRWQ	000_STOP_RUN	1				1				1				0			
NXPRWQ	100_HSKP	26				5				2				988650			
NXPRWQ	100_EXIT	1				1				1				0			
NXPRWQ	110_BUILD_LEVEL_6_TABLE	12				4				2				6912			
NXPRWQ	110_EXIT	1				1				1				0			
NXPRWQ	200_CHK_WRITE_PROCESS	12				4				2				7500			
NXPRWQ	200_EXIT	1				1				1				0			
NXPRWQ	210_READ	12				6				3				9408			
NXPRWQ	210_EXIT	1				1				1				0			
NXPRWQ	220_SELECT_CONTROL	33				10				2				523908			
NXPRWQ	220_EXIT	1				1				1				0			
NXPRWQ	221_IDC_CATEGORY_CHK	14				16				2				504			
NXPRWQ	221_EXIT	1				1				1				0			
NXPRWQ	222_TK_TYPE_CHECK	62				68				5				94302			
NXPRWQ	222_EXIT	1				1				1				0			
NXPRWQ	2221_BASE_VS_CNSNE	27				7				2				771147			
NXPRWQ	2221_EXIT	1				1				1				0			
NXPRWQ	230_FORMAT_CONTROL	20				8				2				30420			
NXPRWQ	230_EXIT	1				1				1				0			
NXPRWQ	231_RECEIPT_FORMAT	13				3				2				83200			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
NXPRWQ	231_EXIT	1				1				1				0			
NXPRWQ	232_INITIAL_FORMAT	5				1				1				320			
NXPRWQ	232_EXIT	1				1				1				0			
NXPRWQ	233_INTERMEDIATE_FORMAT	5				1				1				320			
NXPRWQ	233_EXIT	1				1				1				0			
NXPRWQ	234_FINAL_FORMAT	7				2				2				5488			
NXPRWQ	234_EXIT	1				1				1				0			
NXPRWQ	235_EXPORT_FORMAT	18				4				2				263538			
NXPRWQ	235_EXIT	1				1				1				0			
NXPRWQ	236_FORMAT_ALL	26				3				2				3313674			
NXPRWQ	236_EXIT	1				1				1				0			
NXPRWQ	300_WRAP_UP	21				3				2				774144			
NXPRWQ	300_EXIT	1				1				1				0			
NXPVWQ	000_DRIVER	26				12				3				665600			
NXPVWQ	000_EXIT	1				1				1				0			
NXPVWQ	100_HSKP	43				9				3				2730672			
NXPVWQ	100_EXIT	1				1				1				0			
NXPVWQ	200_REFORMAT_INPUT_FILE	20				9				2				141120			
NXPVWQ	200_EXIT	1				1				1				0			
NXPVWQ	210_PROCESS_PZ_FILE	91				16				3				685687275			
NXPVWQ	210_EXIT	1				1				1				0			
NXPVWQ	300_MERGE_INPUT_AND_PV	27				10				3				492075			
NXPVWQ	300_EXIT	1				1				1				0			
NXPVWQ	310_COPY_INPUT	6				2				2				864			
NXPVWQ	310_EXIT	1				1				1				0			
NXPVWQ	320_COPY_PV	21				7				3				365904			
NXPVWQ	320_EXIT	1				1				1				0			
NXPVWQ	330_UPDATE_HEADER	7				2				2				1575			
NXPVWQ	330_EXIT	1				1				1				0			
NXPVWQ	400_FINALIZE_FILES	22				3				2				880000			
NXPVWQ	400_EXIT	1				1				1				0			
NXPVWQ	500_UPDATE_PV_CONTROL_REC	35				5				2				1372140			
NXPVWQ	500_EXIT	1				1				1				0			
NXPVWQ	700_GETT_PV_RECORD	12				7				2				84672			
NXPVWQ	700_GETT_EXIT	1				1				1				0			
NXPVWQ	700_READ_SORTED_INPUT	11				5				2				6336			
NXPVWQ	700_SORTED_EXIT	1				1				1				0			
NXPVWQ	700_WRITE_TEMP_FILE	6				4				2				1176			
NXPVWQ	700_WRITE_EXIT	1				1				1				0			
NXPVWQ	700_FILE_ALLOCATE	6				6				2				6534			
NXPVWQ	700_FILE_ALLOCATE_EXIT	1				1				1				0			
NXPVWQ	700_FILE_RELEASE	4				2				2				1600			
NXPVWQ	700_FILE_RELEASE_EXIT	1				1				1				0			
NXPVWQ	700_ADDFIL_ERROR_CHECK	12				4				2				43200			
NXPVWQ	700_ADDFIL_ERROR_CHECK_EXIT	1				1				1				0			
NXPVWQ	700_ERROR_DISPLAY	23				8				2				3887			
NXPVWQ	700_ERROR_DISPLAY_EXIT	1				1				1				0			
NXPWWQ	000_DRIVER	4				3				1				144			
NXPWWQ	000_STOP_RUN	1				1				1				0			
NXPWWQ	100_HSKP	36				10				2				2304324			
NXPWWQ	100_CONTINUE	3				1				1				192			
NXPWWQ	100_EXIT	1				1				1				0			
NXPWWQ	110_T_READ_WRITE_LOOP	19				9				2				30400			
NXPWWQ	110_EXIT	1				1				1				0			
NXPWWQ	111_COUNTER	11				4				2				1584			
NXPWWQ	111_EXIT	1				1				1				0			
NXPWWQ	120_HOST_READ_WRITE_LOOP	13				3				1				8125			
NXPWWQ	120_EXIT	1				1				1				0			
NXPWWQ	200_MERGE_COMPARE	31				36				4				2031616			
NXPWWQ	200_EXIT	1				1				1				0			
NXPWWQ	210_SEND_COMPOSITE_TO_ASIF	5				2				1				405			
NXPWWQ	210_EXIT	1				1				1				0			
NXPWWQ	220_SEND_COMPOS_CIV_TO_ASIF	10				3				2				24010			
NXPWWQ	220_EXIT	1				1				1				0			
NXPWWQ	230_SEND_SPECIAL_HANDLING_REC	16				2				1				389376			
NXPWWQ	230_EXIT	1				1				1				0			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
NXPWWQ	231_SEARCH_MONTH_TABLE	8				5				2				4608			
NXPWWQ	231_EXIT	1				1				1				0			
NXPWWQ	300_WRAPUP	32				1				1				0			
NXPWWQ	300_EXIT	1				1				1				0			
NXPWWQ	700_READ_T_FILE	14				7				2				115934			
NXPWWQ	700_READ_T_FILE_EXIT	1				1				1				0			
NXPWWQ	700_READ_HOST_FILE	12				3				2				76800			
NXPWWQ	700_READ_HOST_FILE_EXIT	1				1				1				0			
NXPYWQ	000_DRIVER	19	19			10	10			2	2			260091	260091		
NXPYWQ	000_EXIT	1	1			1	1			1	1			0	0		
NXPYWQ	100_HSKP	43	43			9	9			3	3			2730672	2730672		
NXPYWQ	100_EXIT	1	1			1	1			1	1			0	0		
NXPYWQ	200_REFORMAT_INPUT_FILE	17	20			7	9			2	2			88128	162000		
NXPYWQ	200_EXIT	1	1			1	1			1	1			0	0		
NXPYWQ	210_PROCESS_PZ_FILE	91	91			16	16			3	3			685687275	685687275		
NXPYWQ	210_EXIT	1	1			1	1			1	1			0	0		
NXPYWQ	300_MERGE_INPUT_AND_PY	27	27			10	10			3	3			492075	492075		
NXPYWQ	300_EXIT	1	1			1	1			1	1			0	0		
NXPYWQ	310_COPY_INPUT	6	6			2	2			2	2			864	864		
NXPYWQ	310_EXIT	1	1			1	1			1	1			0	0		
NXPYWQ	320_COPY_PY	21	21			7	7			3	3			365904	365904		
NXPYWQ	320_EXIT	1	1			1	1			1	1			0	0		
NXPYWQ	330_UPDATE_HEADER	7	7			2	2			2	2			1575	1575		
NXPYWQ	330_EXIT	1	1			1	1			1	1			0	0		
NXPYWQ	400_FINALIZE_FILES	22	22			3	3			2	2			880000	880000		
NXPYWQ	400_EXIT	1	1			1	1			1	1			0	0		
NXPYWQ	700_GETT_PY_RECORD	12	12			7	7			2	2			84672	84672		
NXPYWQ	700_GETT_EXIT	1	1			1	1			1	1			0	0		
NXPYWQ	700_READ_SORTED_INPUT	10	10			5	5			2	2			7290	7290		
NXPYWQ	700_SORTED_EXIT	1	1			1	1			1	1			0	0		
NXPYWQ	700_WRITE_TEMP_FILE	6	6			4	4			2	2			1176	1176		
NXPYWQ	700_WRITE_EXIT	1	1			1	1			1	1			0	0		
NXPYWQ	700_FILE_ALLOCATE	6	6			6	6			2	2			6534	6534		
NXPYWQ	700_FILE_ALLOCATE_EXIT	1	1			1	1			1	1			0	0		
NXPYWQ	700_FILE_RELEASE	4	4			2	2			2	2			1600	1600		
NXPYWQ	700_FILE_RELEASE_EXIT	1	1			1	1			1	1			0	0		
NXPYWQ	700_ADDFIL_ERROR_CHECK	12	12			4	4			2	2			43200	43200		
NXPYWQ	700_ADDFIL_ERROR_CHECK_EXIT	1	1			1	1			1	1			0	0		
NXPYWQ	700_ERROR_DISPLAY	23	23			8	8			2	2			3312	3312		
NXPYWQ	700_ERROR_DISPLAY_EXIT	1	1			1	1			1	1			0	0		
NXPZWQ	000_DRIVER	9				6				2				21609			
NXPZWQ	000_STOP_RUN	1				1				1				0			
NXPZWQ	100_UPDT_EOD_HSKP	56				16				3				39513600			
NXPZWQ	100_EXIT	1				1				1				0			
NXPZWQ	110_ADAM_III_INPUT	34				20				5				1470976			
NXPZWQ	110_EXIT	1				1				1				0			
NXPZWQ	120_ASIF_INPUT	26				8				3				733824			
NXPZWQ	120_EXIT	1				1				1				0			
NXPZWQ	130_LOAD_MONTH_YEAR_TABLE	1				3				1				36			
NXPZWQ	130_EXIT	1				1				1				0			
NXPZWQ	131_LOAD_MONTH_TABLE	5				2				1				180			
NXPZWQ	131_EXIT	1				1				1				0			
NXPZWQ	200_MERGE_COMPARE	27				34				2				292032			
NXPZWQ	200_EXIT	1				1				1				0			
NXPZWQ	210_DELETED_TCMD_SORTED	5				1				1				720			
NXPZWQ	210_EXIT	1				1				1				0			
NXPZWQ	220_DELETED_TCMD_HIST	6				1				1				600			
NXPZWQ	220_EXIT	1				1				1				0			
NXPZWQ	230_COPY_SORTED	9				9				2				97344			
NXPZWQ	230_EXIT	1				1				1				0			
NXPZWQ	240_COPY_HIST	6				1				1				600			
NXPZWQ	240_EXIT	1				1				1				0			
NXPZWQ	250_ABORT_SORTED_RECS	7				1				1				7168			
NXPZWQ	250_EXIT	1				1				1				0			
NXPZWQ	260_ABORT_HIST_RECORDS	17				20				3				205700			
NXPZWQ	260_EXIT	1				1				1				0			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
NXPZWQ	261_READ_SORTED	5				2				1				180			
NXPZWQ	261_EXIT	1				1				1				0			
NXPZWQ	270_DELETE_REC_WRITE	5				1				1				720			
NXPZWQ	270_EXIT	1				1				1				0			
NXPZWQ	280_WRITE_AND_ABORT_RECORDS	18				6				2				352800			
NXPZWQ	280_EXIT	1				1				1				0			
NXPZWQ	281_WRITE_SORTED_TO_HIST	14				8				2				236600			
NXPZWQ	281_EXIT	1				1				1				0			
NXPZWQ	300_WRAP_UP	14				4				2				98784			
NXPZWQ	300_CONTINUE	15				6				2				1215			
NXPZWQ	300_EXIT	1				1				1				0			
NXPZWQ	310_TOTAL_DISPLAYS	40				2				1				1713960			
NXPZWQ	310_EXIT	1				1				1				0			
NXPZWQ	320_UPDATE_RANDOM_FILES	10				2				1				1440			
NXPZWQ	320_CONTINUE	10				4				2				4000			
NXPZWQ	320_EXIT	1				1				1				0			
NXPZWQ	321_Z3_REWRITE	5				1				1				0			
NXPZWQ	321_EXIT	1				1				1				0			
NXPZWQ	330_GETT_L0_CONTROL_RECORD	25				3				2				342225			
NXPZWQ	330_EXIT	1				1				1				0			
NXPZWQ	340_RSPAWN_PARAGRAPH	35				6				2				56000			
NXPZWQ	340_EXIT	1				1				1				0			
NXPZWQ	341_RSPAWN_CALL	8				2				2				12800			
NXPZWQ	341_EXIT	1				1				1				0			
NXPZWQ	350_UPDATE_L0_CONTROL_RECORD	19				3				2				98496			
NXPZWQ	350_EXIT	1				1				1				0			
NXPZWQ	360_MOVE_TABLE_TO_PZ2	1				2				1				16			
NXPZWQ	360_EXIT	1				1				1				0			
NXPZWQ	361_MOVE_MONTHLY_DATA	2				2				1				128			
NXPZWQ	361_EXIT	1				1				1				0			
NXPZWQ	700_TOP_OF_PAGE	1				1				1				0			
NXPZWQ	700_TOP_EXIT	1				1				1				0			
NXPZWQ	700_DISPLAY_COUNTERS	24				4				2				6144			
NXPZWQ	700_DISPLAY_EXIT	1				1				1				0			
NXPZWQ	700_READ_OLD_HIST	6				2				1				3456			
NXPZWQ	700_READ_OLD_HIST_EXIT	1				1				1				0			
NXPZWQ	700_READ_SORT_FILE	22				9				2				266200			
NXPZWQ	700_READ_SORT_FILE_EXIT	1				1				1				0			
NXPZWQ	700_FIND_LIFT_MONTH	11				7				2				27500			
NXPZWQ	700_FIND_LIFT_MONTH_EXIT	1				1				1				0			
NXPZWQ	700_WRITE_HISTORY	5				5				2				6480			
NXPZWQ	700_WRITE_HISTORY_EXIT	1				1				1				0			
NXPZWQ	700_OLD_MONTH_PROC	35				15				3				4046000			
NXPZWQ	700_OLD_MONTH_PROC_EXIT	1				1				1				0			
NXPZWQ	700_Z3_REWRITE	5				1				1				0			
NXPZWQ	700_Z3_REWRITE_EXIT	1				1				1				0			
NXPZWQ	700_WRITE_Z1	6				2				1				6144			
NXPZWQ	700_WRITE_Z1_EXIT	1				1				1				0			
NXPZWQ	700_ERROR_DISPLAY	8				1				1				0			
NXPZWQ	700_ERROR_DISPLAY_EXIT	1				1				1				0			
NXR0WQ	000_DRIVER	16				7				2				176400			
NXR0WQ	000_STOP_RUN	1				1				1				0			
NXR0WQ	100_HOUSEKEEPING	44				8				2				3933644			
NXR0WQ	100_EXIT	1				1				1				0			
NXR0WQ	110_READ_WRITE	5				3				1				180			
NXR0WQ	110_EXIT	0				0				0				0			
NXR0WQ	200_CLEAR_OLD	12				9				3				10800			
NXR0WQ	200_EXIT	1				1				1				0			
NXR0WQ	300_PROCESS_INPUT	4				6				2				400			
NXR0WQ	300_EXIT	1				1				1				0			
NXR0WQ	310_PROCESS_NEW	19				6				2				45619			
NXR0WQ	310_EXIT	1				1				1				0			
NXR0WQ	320_PROCESS_ERROR	20				6				2				81920			
NXR0WQ	320_EXIT	1				1				1				0			
NXR0WQ	400_SORT_MERGE_T1_T2	3				2				2				108			
NXR0WQ	400_EXIT	1				1				1				0			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts Baseline	October	Januaray	April	McCabe's CC Baseline	October	Januaray	April	Max Nest Baseline	October	Januaray	April	Information Flow Baseline	October	Januaray	April
NXR0WQ	410_READ_INPUT_FILES_PARA	6				4				2				864			
NXR0WQ	411_READ_T1_TEMP	6				3				2				54			
NXR0WQ	411_EXIT	1				1				1				0			
NXR0WQ	412_READ_TEMP_INPUT	7				4				2				112			
NXR0WQ	412_EXIT	1				1				1				0			
NXR0WQ	410_EXIT	1				1				1				0			
NXR0WQ	420_WRITE_R0_PARA	12				5				2				24300			
NXR0WQ	421_RETURN_WRITE_REC	14				5				3				3150			
NXR0WQ	421_EXIT	1				1				1				0			
NXR0WQ	420_EXIT	1				1				1				0			
NXR0WQ	500_EOO_WRAP_UP	12				3				2				52272			
NXR0WQ	500_EXIT	1				1				1				0			
NXR0WQ	700_EDIT_INPUT	89				35				3				118933904			
NXR0WQ	700_EDIT_INPUT_EXIT	1				1				1				0			
NXR0WQ	700_FORMAT_AND_WRITE	119				106				2				8044400			
NXR0WQ	700_FORMAT_AND_WRITE_EXIT	1				1				1				0			
NXR1WQ	000_DRIVER	16				6				2				132496			
NXR1WQ	000_STOP_RUN	1				1				1				0			
NXR1WQ	100_HOUSEKEEPING	30				6				2				6021120			
NXR1WQ	100_EXIT	1				1				1				0			
NXR1WQ	200_SELECT_RECORDS_FOR_RPT	5				5				2				720			
NXR1WQ	200_EXIT	1				1				1				0			
NXR1WQ	210_READ_R0	8				4				2				512			
NXR1WQ	210_EXIT	1				1				1				0			
NXR1WQ	220_PROCESS_SELECTED_RECORD	11				6				2				19404			
NXR1WQ	220_EXIT	1				1				1				0			
NXR1WQ	300_WRITE_REPORT	17				5				2				103428			
NXR1WQ	300_EXIT	1				1				1				0			
NXR1WQ	310_READ_FIRST_TIME	10				4				2				20250			
NXR1WQ	310_EXIT	1				1				1				0			
NXR1WQ	320_PROCESS_RECORD	35				7				2				5826240			
NXR1WQ	320_EXIT	1				1				1				0			
NXR1WQ	330_PROCESS_SUB_AREA_TOTALS	34				9				2				10359936			
NXR1WQ	330_EXIT	1				1				1				0			
NXR1WQ	340_PROCESS_MAI_AREA_TOTALS	43				9				2				21070000			
NXR1WQ	340_EXIT	1				1				1				0			
NXR1WQ	350_PROCESS_TYPE_TOTALS	53				13				2				53851392			
NXR1WQ	350_EXIT	1				1				1				0			
NXR1WQ	360_PROCESS_MFST_STA_TOTALS	45				8				2				29963520			
NXR1WQ	360_EXIT	1				1				1				0			
NXR1WQ	370_PROCESS_NAF_TOTALS	124				25				2				882659776			
NXR1WQ	370_EXIT	1				1				1				0			
NXR1WQ	380_PROCESS_MAC_TOTALS	118				23				2				776348550			
NXR1WQ	380_EXIT	1				1				1				0			
NXR1WQ	700_MAI_TABLE_SEARCH	9				4				2				4356			
NXR1WQ	700_MAI_SEARCH_EXIT	1				1				1				0			
NXR1WQ	700_TYPE_SEARCH	6				4				2				4056			
NXR1WQ	700_TYPE_SEARCH_EXIT	1				1				1				0			
NXR1WQ	700_WRITE_HEADERS	18				9				2				526338			
NXR1WQ	700_WRITE_HEADERS_EXIT	1				1				1				0			
NXR1WQ	700_WRITE_TRAILER	7				3				2				25200			
NXR1WQ	700_WRITE_TRAILER_EXIT	1				1				1				0			
NXR1WQ	700_ERROR_PROCESS	6				2				2				0			
NXR1WQ	700_ERROR_PROCESS_EXIT	1				1				1				0			
NXR2WQ	000_CONTROL	14				7				2				6174			
NXR2WQ	000_STOP_RUN	1				1				1				0			
NXR2WQ	100_HSKP	50				9				2				6372450			
NXR2WQ	100_EXIT	1				1				1				0			
NXR2WQ	110_BUILD_ABORTED_MFST_TABLE	15				7				2				138240			
NXR2WQ	110_EXIT	1				1				1				0			
NXR2WQ	120_LOAD_PGM_T1_TABLE	21				9				3				124509			
NXR2WQ	120_EXIT	1				1				1				0			
NXR2WQ	200_GETT_AND_RITE_ADAM_III_LFS	72				23				2				233280000			
NXR2WQ	200_EXIT	1				1				1				0			
NXR2WQ	210_GETT_L_REC	30				10				2				1642680			
NXR2WQ	210_EXIT	1				1				1				0			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
NXR2WQ	211_TAB_PROCESS	12				2				2				117612			
NXR2WQ	211_EXIT	1				1				1				0			
NXR2WQ	212_TCMD_PROCESS	44				10				2				21314304			
NXR2WQ	212_EXIT	1				1				1				0			
NXR2WQ	300_WRAP_UP	32				7				2				1620000			
NXR2WQ	300_EXIT	1				1				1				0			
NXR2WQ	700_SEARCH_T1_TABLE	7				6				2				1372			
NXR2WQ	700_SEARCH_T1_EXIT	1				1				1				0			
NXR2WQ	700_SEARCH_T1_TABLE_SEQ	7				6				2				4032			
NXR2WQ	700_SEARCH_T1_TABLE_SEQ_EXIT	1				1				1				0			
NXR2WQ	700_HIGH_WEIGHT_ROUTINE	14				5				2				72576			
NXR2WQ	700_HIGH_WEIGHT_ROUTINE_EXIT	1				1				1				0			
NXR2WQ	700_ERROR_DISPLAY	9				2				2				1764			
NXR2WQ	700_ERROR_DISPLAY_EXIT	1				1				1				0			
NXR3WQ	000_CONTROL	12				7				2				5292			
NXR3WQ	000_STOP_RUN	1				1				1				0			
NXR3WQ	100_HSKP	46				7				2				7323246			
NXR3WQ	100_EXIT	1				1				1				0			
NXR3WQ	110_LOAD_TABLES	19				10				3				121600			
NXR3WQ	110_EXIT	1				1				1				0			
NXR3WQ	200_PROCESS_ADAM_III_INPUT	48				18				3				10830000			
NXR3WQ	200_EXIT	1				1				1				0			
NXR3WQ	210_PROCESS_TAB_RECORD	6				8				2				216			
NXR3WQ	210_EXIT	1				1				1				0			
NXR3WQ	220_PROCESS_TCMD_RECORD	54				25				2				30699864			
NXR3WQ	220_EXIT	1				1				1				0			
NXR3WQ	300_WRAP_UP	31				4				2				2430400			
NXR3WQ	300_EXIT	1				1				1				0			
NXR3WQ	700_COMPUTE_HOURS	9				5				2				6561			
NXR3WQ	700_COMPUTE_HOURS_EXIT	1				1				1				0			
NXR3WQ	700_HIGH_WEIGHT_ROUTINE	14				5				2				50400			
NXR3WQ	700_HIGH_WEIGHT_ROUTINE_EXIT	1				1				1				0			
NXR3WQ	700_WRITE_T1	28				7				2				1612800			
NXR3WQ	700_WRITE_T1_EXIT	1				1				1				0			
NXR3WQ	700_SEARCH_STN_TABLE	7				4				2				1372			
NXR3WQ	700_SEARCH_STN_EXIT	1				1				1				0			
NXR3WQ	700_SEARCH_STN_TABLE_SEQ	7				6				2				4032			
NXR3WQ	700_SEARCH_STN_TABLE_SEQ_EXIT	1				1				1				0			
NXR3WQ	700_SEARCH_CHNL_TABLE	6				4				2				864			
NXR3WQ	700_SEARCH_CHNL_EXIT	1				1				1				0			
NXR3WQ	700_CHECK_NAF_INDICATORS	21				6				2				25725			
NXR3WQ	700_CHECK_NAF_INDICATORS_EXIT	1				1				1				0			
NXR3WQ	700_ERROR_DISPLAY	7				2				2				1008			
NXR3WQ	700_ERR_DISPLAY_EXIT	1				1				1				0			
NXR5WQ	000_DRIVER	5				2				1				80			
NXR5WQ	000_EXIT	1				1				1				0			
NXR5WQ	100_HSKP	8				2				1				33800			
NXR5WQ	100_EXIT	1				1				1				0			
NXR5WQ	110_READ_WRITE_TO_TEMP	9				3				1				3600			
NXR5WQ	110_EXIT	1				1				1				0			
NXR5WQ	200_PROCESS	32				15				3				627200			
NXR5WQ	200_EXIT	1				1				1				0			
NXR5WQ	300_RESORT_RECS	5				2				1				980			
NXR5WQ	300_EXIT	1				1				1				0			
NXR5WQ	310_READ_WRITE	7				3				1				1008			
NXR5WQ	310_EXIT	1				1				1				0			
NXR5WQ	400_WRAPUP	14				2				2				0			
NXR5WQ	400_EXIT	1				1				1				0			
NXR6WQ	000_DRIVER	4				2				1				36			
NXR6WQ	000_EXIT	1				1				1				0			
NXR6WQ	100_HSKP	3				1				1				192			
NXR6WQ	100_EXIT	1				1				1				0			
NXR6WQ	200_READ_WRITE	11				5				2				17600			
NXR6WQ	200_EXIT	1				1				1				0			
NXR6WQ	300_WRAPUP	3				1				1				0			
NXR6WQ	300_EXIT	1				1				1				0			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
NXR7WQ	000_HSKP	8	8			2	2			2	2			4608	4608		
NXR7WQ	000_CLOSE	8	9			2	2			2	2			5832	8100		
NXR7WQ	400_STARS_FILE_CK	5	5			1	1			1	1			0	0		
NXR7WQ	450_STARS_FILE_CK	6	6			3	3			2	2			216	216		
NXR7WQ	500_TCN_CHECK	9	10			4	4			2	2			2304	4000		
NXRAWQ	000_CONTROL	5				3				2				20			
NXRAWQ	000_STOP_RUN	1				1				1				0			
NXRAWQ	100_TC_MOVEMENT	15				5				2				30375			
NXRAWQ	100_EXIT	1				1				1				0			
NXRAWQ	110_READ_WRITE_LOOP	9				3				1				729			
NXRAWQ	110_EXIT	1				1				1				0			
NXRAWQ	200_TC_ONHAND	12				4				1				9408			
NXRAWQ	200_EXIT	1				1				1				0			
NXRAWQ	210_READ_WRITE_LOOP	9				3				1				729			
NXRAWQ	210_EXIT	1				1				1				0			
NXRDWQ	000_CONTROL	13				5				2				5200			
NXRDWQ	000_STOP_RUN	1				1				1				0			
NXRDWQ	100_CHECK_NUM_RECORDS	6				2				1				216			
NXRDWQ	100_EXIT	1				1				1				0			
NXRDWQ	200_BUILD	6				3				2				216			
NXRDWQ	200_EXIT	1				1				1				0			
NXRDWQ	210_BUILD_MV	9				2				1				324			
NXRDWQ	210_EXIT	1				1				1				0			
NXRDWQ	220_BUILD_OH	9				2				1				324			
NXRDWQ	220_EXIT	1				1				1				0			
NXRDWQ	300_DUMP_ONE_RECORD	6				3				2				216			
NXRDWQ	300_EXIT	1				1				1				0			
NXRDWQ	310_DUMP_ONE_T_MV_REC	9				2				1				144			
NXRDWQ	310_EXIT	1				1				1				0			
NXRDWQ	320_DUMP_ONE_T_OH_REC	9				2				1				144			
NXRDWQ	320_EXIT	1				1				1				0			
NXRDWQ	400_T_COMPOSITE_MV	14				9				2				18144			
NXRDWQ	400_EXIT	1				1				1				0			
NXRDWQ	410_T_MV_READ_LOOP	7				2				1				448			
NXRDWQ	410_EXIT	1				1				1				0			
NXRDWQ	500_T_COMPOSITE_OH	14				9				2				18144			
NXRDWQ	500_EXIT	1				1				1				0			
NXRDWQ	510_T_OH_READ_LOOP	7				2				1				448			
NXRDWQ	510_EXIT	1				1				1				0			
NXREWQ	000_DRIVER	4				2				1				36			
NXREWQ	000_STOP_RUN	1				1				1				0			
NXREWQ	100_HSKP	10				2				1				20250			
NXREWQ	100_EXIT	1				1				1				0			
NXREWQ	110_MAKE_TEMP_FILE	6				3				1				486			
NXREWQ	110_EXIT	1				1				1				0			
NXREWQ	200_PROCESS	14				28				3				89600			
NXREWQ	200_EXIT	1				1				1				0			
NXREWQ	300_WRAPUP	9				1				1				729			
NXREWQ	300_EXIT	1				1				1				0			
NXREWQ	700_READ_INPUT	7				3				2				1008			
NXREWQ	700_READ_INPUT_EXIT	1				1				1				0			
NXREWQ	700_READ_MOVE	9				4				2				5625			
NXREWQ	700_READ_MOVE_EXIT	1				1				1				0			
NXRGWQ	000_MAIN_DRIVER	18	18			10	10			2	2			176418	176418		
NXRGWQ	000_STOP	1	1			1	1			1	1			0	0		
NXRGWQ	100_HSKP	30	30			8	8			2	2			1297920	1297920		
NXRGWQ	100_EXIT	1	1			1	1			1	1			0	0		
NXRGWQ	110_VALID_RPT	4	4			3	3			1	1			576	576		
NXRGWQ	110_EXIT	1	1			1	1			1	1			0	0		
NXRGWQ	111_LOAD_VALID_RPT_TABLE	2	2			1	1			1	1			72	72		
NXRGWQ	111_EXIT	1	1			1	1			1	1			0	0		
NXRGWQ	115_VALID_HQS_RPT	7	7			4	4			2	2			700	700		
NXRGWQ	115_EXIT	1	1			1	1			1	1			0	0		
NXRGWQ	1151_RG4_REPORT_TABLE	7	7			3	3			1	1			2268	2268		
NXRGWQ	1151_EXIT	1	1			1	1			1	1			0	0		
NXRGWQ	1152_RG6_EOM_RPT_TABLE	7	7			3	3			1	1			2268	2268		

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
NXRGWQ	1152_EXIT	1	1			1	1			1	1			0	0		
NXRGWQ	116_LOAD_VALID_HQS_RPT_TABLE	3	3			1	1			1	1			108	108		
NXRGWQ	116_EXIT	1	1			1	1			1	1			0	0		
NXRGWQ	117_LOAD_VALID_HQS_TABLE_RG6	3	3			1	1			1	1			108	108		
NXRGWQ	117_EXIT	1	1			1	1			1	1			0	0		
NXRGWQ	120_INPUT_READ	8	8			2	2			1	1			648	648		
NXRGWQ	120_INPUT_READ_EXIT	1	1			1	1			1	1			0	0		
NXRGWQ	200_PROCESS	21	21			9	9			2	2			537600	537600		
NXRGWQ	200_EXIT	1	1			1	1			1	1			0	0		
NXRGWQ	210_INPUT_PROCESS	24	24			8	8			3	3			221184	221184		
NXRGWQ	210_EXIT	1	1			1	1			1	1			0	0		
NXRGWQ	211_CHECK_REPORTS	10	10			6	6			2	2			24010	24010		
NXRGWQ	211_EXIT	1	1			1	1			1	1			0	0		
NXRGWQ	212_CHECK_HQS	20	20			9	9			2	2			242000	242000		
NXRGWQ	212_EXIT	1	1			1	1			1	1			0	0		
NXRGWQ	213_CHECK_ASIF	20	20			9	9			2	2			242000	242000		
NXRGWQ	213_EXIT	1	1			1	1			1	1			0	0		
NXRGWQ	220_PROCESS	27	32			12	15			2	2			1179387	2230272		
NXRGWQ	220_CONTINUE	15	15			3	3			2	2			188160	188160		
NXRGWQ	220_EXIT	1	1			1	1			1	1			0	0		
NXRGWQ	221_OUTPUT_PROCESS	8	8			5	5			2	2			4608	4608		
NXRGWQ	221_EXIT	1	1			1	1			1	1			0	0		
NXRGWQ	221_SKIP	4	4			4	4			1	1			400	400		
NXRGWQ	221_SKIP_EXIT	1	1			1	1			1	1			0	0		
NXRGWQ	221_SELECT	4	4			4	4			1	1			400	400		
NXRGWQ	221_SELECT_EXIT	1	1			1	1			1	1			0	0		
NXRGWQ	2211_SKIP_RECORD	2	2			2	2			1	1			8	8		
NXRGWQ	2211_EXIT	1	1			1	1			1	1			0	0		
NXRGWQ	2212_WRITE_OUTPUT_REC	5	5			3	3			1	1			720	720		
NXRGWQ	2212_EXIT	1	1			1	1			1	1			0	0		
NXRGWQ	700_CHECK_STATION_CODE	16	16			5	5			3	3			123904	123904		
NXRGWQ	700_CHECK_STATION_EXIT	1	1			1	1			1	1			0	0		
NXRGWQ	700_READ_TERMINAL_IDS	9	9			4	4			2	2			7056	7056		
NXRGWQ	700_READ_TERMINAL_IDS_EXIT	1	1			1	1			1	1			0	0		
NXRGWQ	700_SET_UP_ALL_STATIONS	7	7			4	4			2	2			4032	4032		
NXRGWQ	700_EXIT_SET_UP_ALL_STATIONS	1	1			1	1			1	1			0	0		
NXRGWQ	700_LOAD_STATION_HOLD_TABLE	3	3			1	1			1	1			108	108		
NXRGWQ	700_EXIT_STATION_HOLD_TABLE	1	1			1	1			1	1			0	0		
NXRGWQ	700_ADDFIL_ERROR_CHECK	12	12			3	3			2	2			62208	62208		
NXRGWQ	700_ADDFIL_EXIT	1	1			1	1			1	1			0	0		
NXRGWQ	700_SEARCH_PORT_RPT_TABLE	13	13			4	4			2	2			22932	22932		
NXRGWQ	700_SEARCH_PORT_RPT_TABLE_EXIT	1	1			1	1			1	1			0	0		
NXRGWQ	700_SEARCH_HQS_RPT_TABLE	13	13			4	4			2	2			16848	16848		
NXRGWQ	700_SEARCH_HQS_RPT_TABLE_EXIT	1	1			1	1			1	1			0	0		
NXRGWQ	700_INPUT_ERROR	11	11			1	1			1	1			174636	174636		
NXRGWQ	700_INPUT_ERROR_EXIT	1	1			1	1			1	1			0	0		
NXRGWQ	700_ERROR_DUMP	3	3			1	1			1	1			0	0		
NXRGWQ	700_ERROR_DUMP_EXIT	1	1			1	1			1	1			0	0		
NXRGWQ	700_INPUT_READ	7	7			2	2			1	1			252	252		
NXRGWQ	700_INPUT_READ_EXIT	1	1			1	1			1	1			0	0		
NXRGWQ	700_SEND_MESSAGE	40	40			7	7			2	2			5416960	5416960		
NXRGWQ	700_SEND_MESSAGE_EXIT	1	1			1	1			1	1			0	0		
NXRIWQ	000_DRIVER	4				2				2				16			
NXRIWQ	000_STOP_RUN	1				1				1				0			
NXRIWQ	100_TC_ONHAND	12				3				1				9408			
NXRIWQ	100_EXIT	1				1				1				0			
NXRIWQ	110_READ_WRITE_LOOP	12				4				2				21168			
NXRIWQ	110_EXIT	1				1				1				0			
NXRIWQ	200_TC_MOVEMENT	12				3				1				9408			
NXRIWQ	200_EXIT	1				1				1				0			
NXRIWQ	210_READ_WRITE_LOOP	12				4				2				21168			
NXRIWQ	210_EXIT	1				1				1				0			
NXRKWQ	000_DRIVER	4				2				2				16			
NXRKWQ	000_STOP_RUN	1				1				1				0			
NXRKWQ	100_TC_ONHAND	11				3				1				8624			
NXRKWQ	100_EXIT	1				1				1				0			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts Baseline	October	Januaray	April	McCabe's CC Baseline	October	Januaray	April	Max Nest Baseline	October	Januaray	April	Information Flow Baseline	October	Januaray	April
NXRKWQ	110_READ_WRITE_LOOP	13				4				2				11700			
NXRKWQ	110_EXIT	1				1				1				0			
NXRKWQ	200_TC_MOVEMENT	11				3				1				8624			
NXRKWQ	200_EXIT	1				1				1				0			
NXRKWQ	210_READ_WRITE_LOOP	13				4				2				11700			
NXRKWQ	210_EXIT	1				1				1				0			
NXRMWQ	000_DRIVER	4				1				1				0			
NXRMWQ	000_EXIT	1				1				1				0			
NXRMWQ	100_HSKP	2				1				1				0			
NXRMWQ	100_EXIT	1				1				1				0			
NXRMWQ	200_ADD_OR_DELETE	10				9				2				3240			
NXRMWQ	200_EXIT	1				1				1				0			
NXRMWQ	210_DELETE_MAI	14				5				2				5600			
NXRMWQ	210_EXIT	1				1				1				0			
NXRMWQ	220_ADD_MAI	23				8				2				46575			
NXRMWQ	220_EXIT	1				1				1				0			
NXRMWQ	300_WRAPUP	7				3				2				252			
NXRMWQ	300_EXIT	1				1				1				0			
NXRMWQ	310_TEMP_TO_MAI	6				3				1				384			
NXRMWQ	310_EXIT	1				1				1				0			
NXRMWQ	700_READ_WRITE_MAI	5				3				1				320			
NXRMWQ	700_READ_WRITE_EXIT	1				1				1				0			
NXRMWQ	700_READ_MAI	3				2				1				27			
NXRMWQ	700_READ_EXIT	1				1				1				0			
NXRPWQ	000_DRIVER	8	8		11	3	3		5	2	2		2	4608	4608		13475
NXRPWQ	000_STOP	1	1		1	1	1		1	1	1		1	0	0		0
NXRPWQ	100_HSKP	25	25		27	7	7		9	2	2		2	608400	608400		762048
NXRPWQ	100_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
NXRPWQ	110_VALIDATE_REPORT_CODE	14	14		16	6	6		8	2	2		2	14336	14336		20736
NXRPWQ	110_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
NXRPWQ	120_LOAD_REPORT_STATION_TABLE	12	12		12	3	3		3	2	2		2	10800	10800		10800
NXRPWQ	120_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
NXRPWQ	130_INITIALIZE_REPORT_FILE	18	18		19	6	6		7	2	2		2	16200	16200		23275
NXRPWQ	130_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
NXRPWQ	131_ADDFIL_CALL	8	13		14	5	8		9	2	2		2	24200	83200		101150
NXRPWQ	131_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
NXRPWQ	200_PROCESS_REPORT_FILE	7	7		8	4	4		5	1	1		2	2800	2800		4608
NXRPWQ	200_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
NXRPWQ	200_SEARCH_AT_END	3	3		4	4	4		5	1	1		2	300	300		576
NXRPWQ	200_SEARCH_WHEN_1	2	2		3	2	2		3	1	1		2	8	8		27
NXRPWQ	200_SEARCH_WHEN_2	4	4		5	4	4		5	1	1		2	900	900		1620
NXRPWQ	210_WRITE_AND_READ_NEXT	7	7		9	3	3		5	2	2		2	2268	2268		3969
NXRPWQ	210_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
NXRPWQ	220_SKIP_THIS_STATION	4	4		6	2	2		4	1	1		2	36	36		96
NXRPWQ	220_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
NXRPWQ	300_CLOSE	11	11		13	5	5		7	2	2		2	70400	70400		93925
NXRPWQ	300_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
NXRPWQ	310_DISPLAY	8	8		9	2	2		3	2	2		2	512	512		900
NXRPWQ	310_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
NXRPWQ	700_ADDFIL_ERROR_CHECK	11	11		12	3	3		4	2	2		2	33275	33275		43200
NXRPWQ	700_ADDFIL_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
NXRPWQ	700_READ_REQUEST_FILE	4	4		6	2	2		4	1	1		2	64	64		150
NXRPWQ	700_READ_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
NXRQWQ	000_DRIVER	4				1				1				0			
NXRQWQ	000_EXIT	1				1				1				0			
NXRQWQ	100_HOUSEKEEPING	8				1				1				28800			
NXRQWQ	100_EXIT	1				1				1				0			
NXRQWQ	200_WRITE_BANNER_PAGE	53				53				1				2597			
NXRQWQ	200_EXIT	1				1				1				0			
NXRQWQ	300_WRAPUP	2				1				1				0			
NXRQWQ	300_EXIT	1				1				1				0			
NXRRWQ	000_DRIVER	8				3				2				128			
NXRRWQ	000_EXIT	1				1				1				0			
NXRRWQ	100_HOUSEKEEPING	14				3				1				274400			
NXRRWQ	100_EXIT	1				1				1				0			
NXRRWQ	200_WRITE_BANNER_PAGE	5				3				1				180			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
NXRRWQ	200_EXIT	1				1				1				0			
NXRRWQ	300_WRITE_MSG_PAGE	20				6				2				11520			
NXRRWQ	300_EXIT	1				1				1				0			
NXRRWQ	310_WRITE_MSG	6				3				1				1536			
NXRRWQ	310_EXIT	1				1				1				0			
NXRRWQ	400_WRAPUP	7				2				2				0			
NXRRWQ	400_EXIT	1				1				1				0			
NXRSWQ	000_DRIVER	20				8				2				18000			
NXRSWQ	000_EXIT	1				1				1				0			
NXRSWQ	100_HSKP	9				2				2				15876			
NXRSWQ	100_EXIT	1				1				1				0			
NXRSWQ	200_GET_CONTROL_RECORD	13				2				2				63700			
NXRSWQ	200_EXIT	1				1				1				0			
NXRSWQ	300_CHECK_DATE	4				2				2				576			
NXRSWQ	300_EXIT	1				1				1				0			
NXRSWQ	400_SPAWN_PROGRAMS	7				2				2				252			
NXRSWQ	400_EXIT	1				1				1				0			
NXRSWQ	410_R_SPAWN_PN	9				1				1				18225			
NXRSWQ	410_EXIT	1				1				1				0			
NXRSWQ	420_R_SPAWN_PP	9				1				1				18225			
NXRSWQ	420_EXIT	1				1				1				0			
NXRSWQ	500_UPDATE_RS_CONTROL_REC	28				4				2				383292			
NXRSWQ	500_EXIT	1				1				1				0			
NXRSWQ	700_CHECK_R_SPAWN_ERR	5				4				2				180			
NXRSWQ	700_CHECK_R_SPAWN_ERR_EXIT	1				1				1				0			
NXRSWQ	710_RWAIT	3				1				1				432			
NXRSWQ	710_RWAIT_EXIT	1				1				1				0			
NXRSWQ	700_STARS_CALL_ERROR	20				6				2				0			
NXRSWQ	700_STARS_CALL_EXIT	1				1				1				0			
NXRSWQ	700_SECOND_RSPAWN_ERROR	2				1				1				0			
NXRSWQ	700_EXIT_SECOND_RSPAWN_ERROR	1				1				1				0			
NXRSWQ	700_SPAWN_ERROR	24				8				2				0			
NXRSWQ	700_EXIT	1				1				1				0			
NXRUWQ	000_DRIVER	4				2				1				36			
NXRUWQ	000_STOP_RUN	1				1				1				0			
NXRUWQ	100_HSKP	18				4				1				551250			
NXRUWQ	100_EXIT	1				1				1				0			
NXRUWQ	110_SELECT	48				23				2				559872			
NXRUWQ	110_EXIT	1				1				1				0			
NXRUWQ	111_FORMAT	8				2				1				64800			
NXRUWQ	111_EXIT	1				1				1				0			
NXRUWQ	200_PROCESS	24				10				3				685464			
NXRUWQ	200_EXIT	1				1				1				0			
NXRUWQ	210_ACCUMULATE	18				2				2				73728			
NXRUWQ	210_EXIT	1				1				1				0			
NXRUWQ	220_WRITE_TAC_TOTALS	19				6				2				837900			
NXRUWQ	220_EXIT	1				1				1				0			
NXRUWQ	230_WRITE_APOE_TOTALS	18				7				2				438048			
NXRUWQ	230_EXIT	1				1				1				0			
NXRUWQ	240_WRITE_REPORT_TOTALS	16				6				2				451584			
NXRUWQ	240_EXIT	1				1				1				0			
NXRUWQ	250_COPY_TEMP_FILE	39				19				2				351975			
NXRUWQ	250_EXIT	1				1				1				0			
NXRUWQ	251_ALASKA_COPY	6				3				1				216			
NXRUWQ	251_EXIT	1				1				1				0			
NXRUWQ	252_GERMANY_COPY	6				3				1				216			
NXRUWQ	252_EXIT	1				1				1				0			
NXRUWQ	253_HAWAII_COPY	6				3				1				216			
NXRUWQ	253_EXIT	1				1				1				0			
NXRUWQ	254_HONDURAS_COPY	6				3				1				216			
NXRUWQ	254_EXIT	1				1				1				0			
NXRUWQ	255_JAPAN_COPY	6				3				1				216			
NXRUWQ	255_EXIT	1				1				1				0			
NXRUWQ	256_KOREA_COPY	6				3				1				216			
NXRUWQ	256_EXIT	1				1				1				0			
NXRUWQ	257_PANAMA_COPY	6				3				1				216			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
NXRUWQ	257_EXIT	1				1				1				0			
NXRUWQ	258_PUERTO_RICO_COPY	6				3				1				216			
NXRUWQ	258_EXIT	1				1				1				0			
NXRUWQ	259_GUAM_COPY	6				3				1				216			
NXRUWQ	259_EXIT	1				1				1				0			
NXRUWQ	300_CLOSE	2				1				1				0			
NXRUWQ	300_EXIT	1				1				1				0			
NXRUWQ	700_HEADER	10				2				2				64000			
NXRUWQ	700_HEADER_EXIT	1				1				1				0			
NXRUWQ	700_END_OF_SECTION	3				2				1				192			
NXRUWQ	700_EOS_EXIT	1				1				1				0			
NXRUWQ	710_SKIP	3				2				1				48			
NXRUWQ	710_EXIT	1				1				1				0			
NXRWWQ	000_RW_DRIVER	17				12				2				198288			
NXRWWQ	000_STOP_RUN	1				1				1				0			
NXRWWQ	100_HSKP	10				3				1				1000			
NXRWWQ	100_EXIT	1				1				1				0			
NXRWWQ	200_PROCESS_MV	13				6				2				10192			
NXRWWQ	200_CONTINUE	5				2				1				405			
NXRWWQ	200_EXIT	1				1				1				0			
NXRWWQ	300_PROCESS_OH	13				6				2				10192			
NXRWWQ	300_CONTINUE	5				2				1				405			
NXRWWQ	300_EXIT	1				1				1				0			
NXRWWQ	400_WRAPUP	9				3				2				0			
NXRWWQ	400_EXIT	1				1				1				0			
NXRZWQ	000_DRIVER	20				7				2				338000			
NXRZWQ	000_STOP_RUN	1				1				1				0			
NXRZWQ	100_UPDT_HSKP	66				14				2				60825600			
NXRZWQ	100_EXIT	1				1				1				0			
NXRZWQ	110_LOAD_MONTH_YEAR_TABLE	2				3				1				72			
NXRZWQ	110_EXIT	1				1				1				0			
NXRZWQ	111_LOAD_MONTH_TABLE	6				2				1				216			
NXRZWQ	111_EXIT	1				1				1				0			
NXRZWQ	120_STRIP_OLD_MTH_FRM_OLD_TAPE	50				23				6				2332800			
NXRZWQ	120_CONTINUE	34				11				2				2228224			
NXRZWQ	120_EXIT	1				1				1				0			
NXRZWQ	121_SEARCH_MONTH_TABLE	11				7				2				22275			
NXRZWQ	121_SEARCH_MONTH_EXIT	1				1				1				0			
NXRZWQ	122_SEARCH_YEAR_TABLE	7				4				2				3087			
NXRZWQ	122_SEARCH_YEAR_EXIT	1				1				1				0			
NXRZWQ	130_OLD_MONTH_INPUT	55				23				6				6814720			
NXRZWQ	130_CONTINUE	35				11				2				2293760			
NXRZWQ	130_EXIT	1				1				1				0			
NXRZWQ	131_SEARCH_MONTH_TABLE	11				7				2				22275			
NXRZWQ	131_SEARCH_MONTH_EXIT	1				1				1				0			
NXRZWQ	132_SEARCH_YEAR_TABLE	5				3				1				720			
NXRZWQ	132_SEARCH_YEAR_EXIT	1				1				1				0			
NXRZWQ	133_WRITE_TO_PZ3	6				2				1				486			
NXRZWQ	133_EXIT	1				1				1				0			
NXRZWQ	140_WRITE_PZ2_FILE	2				2				1				32			
NXRZWQ	140_EXIT	1				1				1				0			
NXRZWQ	141_WRITE_PZ2_MONTH	3				2				1				27			
NXRZWQ	141_EXIT	1				1				1				0			
NXRZWQ	200_MERGE_COMPARE	29				34				2				363776			
NXRZWQ	200_EXIT	1				1				1				0			
NXRZWQ	210_DELETED_TCMD_PZ3	6				1				1				600			
NXRZWQ	210_EXIT	1				1				1				0			
NXRZWQ	220_DELETED_TCMD_TAPE	6				1				1				600			
NXRZWQ	220_EXIT	1				1				1				0			
NXRZWQ	230_COPY_PZ3	10				9				2				82810			
NXRZWQ	230_EXIT	1				1				1				0			
NXRZWQ	240_COPY_TAPE	6				1				1				600			
NXRZWQ	240_EXIT	1				1				1				0			
NXRZWQ	250_ABORT_REC_WRITE	8				1				1				6272			
NXRZWQ	250_EXIT	1				1				1				0			
NXRZWQ	260_ABORT_TAPE_RECORDS	17				20				3				170000			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts Baseline	October	Januaray	April	McCabe's CC Baseline	October	Januaray	April	Max Nest Baseline	October	Januaray	April	Information Flow Baseline	October	Januaray	April
NXRZWQ	260_EXIT	1				1				1				0			
NXRZWQ	261_READ_SORTED	5				2				1				180			
NXRZWQ	261_EXIT	1				1				1				0			
NXRZWQ	270_DELETE_REC_WRITE	6				1				1				600			
NXRZWQ	270_EXIT	1				1				1				0			
NXRZWQ	280_WRITE_AND_ABORT_RECORDS	14				6				2				55566			
NXRZWQ	280_EXIT	1				1				1				0			
NXRZWQ	281_WRITE_PZ3_TO_TAPE	13				8				2				140608			
NXRZWQ	281_EXIT	1				1				1				0			
NXRZWQ	300_WRAP_UP	4				1				1				400			
NXRZWQ	300_EXIT	1				1				1				0			
NXRZWQ	310_TOTAL_DISPLAYS	66				2				1				8986626			
NXRZWQ	310_EXIT	1				1				1				0			
NXRZWQ	700_DISPLAY_COUNTER_TABLE	25				4				2				6400			
NXRZWQ	700_DISPLAY_EXIT	1				1				1				0			
NXRZWQ	700_SKIP_TO_HEADERS	2				1				1				0			
NXRZWQ	700_SKIP_EXIT	1				1				1				0			
NXRZWQ	700_READ_PZ5_TEMP_FILE	6				2				1				3456			
NXRZWQ	700_READ_EXIT	1				1				1				0			
NXRZWQ	700_READ_NEW_FILE	9				3				2				17424			
NXRZWQ	700_READ_NEW_FILE_EXIT	1				1				1				0			
NXRZWQ	700_WRITE_HISTORY	4				3				1				3600			
NXRZWQ	700_WRITE_HISTORY_EXIT	1				1				1				0			
NXRZWQ	700_ERROR_DISPLAY	3				1				1				0			
NXRZWQ	700_ERROR_DISPLAY_EXIT	1				1				1				0			
NXRZWQ	700_PZ3_CALCULATE_NEW_YEAR	4				2				2				144			
NXRZWQ	700_PZ3_CALCULATE_EXIT	1				1				1				0			
NXRZWQ	700_PZ5_CALCULATE_NEW_YEAR	4				2				2				144			
NXRZWQ	700_PZ5_CALCULATE_EXIT	1				1				1				0			
NXRZWQ	700_PZ5_FIX_DATES	27				17				4				78732			
NXRZWQ	700_PZ5_FIX_DATES_EXIT	1				1				1				0			
NXS1WQ	000_S1_DRIVER	7				5				2				1008			
NXS1WQ	000_STOP_RUN	1				1				1				0			
NXS1WQ	100_HSKP	28				4				2				2621808			
NXS1WQ	100_EXIT	1				1				1				0			
NXS1WQ	200_BUILD_REPORT	11				16				2				70400			
NXS1WQ	200_EXIT	1				1				1				0			
NXS1WQ	210_PROCESS_REC	5				2				2				180			
NXS1WQ	210_EXIT	1				1				1				0			
NXS1WQ	211_READ_TC_RECORD	9				4				2				225			
NXS1WQ	211_EXIT	1				1				1				0			
NXS1WQ	212_ADD_TO_TOTALS	62				31				3				2008800			
NXS1WQ	212_EXIT	1				1				1				0			
NXS1WQ	213_READ_S1_AKF	8				3				2				1800			
NXS1WQ	213_EXIT	1				1				1				0			
NXS1WQ	220_CHANNEL_CHANGE	15				6				2				11760			
NXS1WQ	220_EXIT	1				1				1				0			
NXS1WQ	221_DLA_OUTPUT	19				10				3				121600			
NXS1WQ	221_EXIT	1				1				1				0			
NXS1WQ	222_USAF_OUTPUT	19				10				3				121600			
NXS1WQ	222_EXIT	1				1				1				0			
NXS1WQ	223_NAVY_OUTPUT	19				10				3				121600			
NXS1WQ	223_EXIT	1				1				1				0			
NXS1WQ	224_DECA_OUTPUT	19				10				3				121600			
NXS1WQ	224_EXIT	1				1				1				0			
NXS1WQ	230_NAF_CHANGE	13				6				2				10192			
NXS1WQ	230_EXIT	1				1				1				0			
NXS1WQ	231_DLA_OUTPUT	21				12				2				124509			
NXS1WQ	231_EXIT	1				1				1				0			
NXS1WQ	232_USAF_OUTPUT	21				12				2				124509			
NXS1WQ	232_EXIT	1				1				1				0			
NXS1WQ	233_NAVY_OUTPUT	21				12				2				124509			
NXS1WQ	233_EXIT	1				1				1				0			
NXS1WQ	234_DECA_OUTPUT	21				12				2				124509			
NXS1WQ	234_EXIT	1				1				1				0			
NXS1WQ	240_APOE_CHANGE	13				6				2				13312			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts Baseline	October	Januaray	April	McCabe's CC Baseline	October	Januaray	April	Max Nest Baseline	October	Januaray	April	Information Flow Baseline	October	Januaray	April
NXS1WQ	240_EXIT	1				1				1				0			
NXS1WQ	241_DLA_OUTPUT	17				12				2				140777			
NXS1WQ	241_EXIT	1				1				1				0			
NXS1WQ	242_USAF_OUTPUT	17				12				2				140777			
NXS1WQ	242_EXIT	1				1				1				0			
NXS1WQ	243_NAVY_OUTPUT	17				12				2				140777			
NXS1WQ	243_EXIT	1				1				1				0			
NXS1WQ	244_DECA_OUTPUT	17				12				2				140777			
NXS1WQ	244_EXIT	1				1				1				0			
NXS1WQ	300_WRAPUP	3				2				2				0			
NXS1WQ	300_EXIT	1				1				1				0			
NXS1WQ	700_WRITE_BLANK_LINE_DLA	5				3				2				320			
NXS1WQ	700_WRITE_BLANK_DLA_EXIT	1				1				1				0			
NXS1WQ	700_WRITE_BLANK_LINE_DECA	5				3				2				320			
NXS1WQ	700_WRITE_BLANK_DECA_EXIT	1				1				1				0			
NXS1WQ	700_WRITE_BLANK_LINE_USAF	5				3				2				320			
NXS1WQ	700_WRITE_BLANK_USAF_EXIT	1				1				1				0			
NXS1WQ	700_WRITE_BLANK_LINE_NAVY	5				3				2				320			
NXS1WQ	700_WRITE_BLANK_NAVY_EXIT	1				1				1				0			
NXS1WQ	700_WRITE_HEADERS_DLA	17				10				2				45968			
NXS1WQ	700_WRITE_HEADERS_DLA_EXIT	1				1				1				0			
NXS1WQ	700_WRITE_HEADERS_USAF	17				10				2				32912			
NXS1WQ	700_WRITE_HEADERS_USAF_EXIT	1				1				1				0			
NXS1WQ	700_WRITE_HEADERS_NAVY	17				10				2				32912			
NXS1WQ	700_WRITE_HEADERS_NAVY_EXIT	1				1				1				0			
NXS1WQ	700_WRITE_HEADERS_DECA	17				10				2				45968			
NXS1WQ	700_WRITE_HEADERS_DECA_EXIT	1				1				1				0			
NXS1WQ	700_FORMAT_OUTPUT	38				2				2				78796800			
NXS1WQ	700_FORMAT_OUTPUT_EXIT	1				1				1				0			
NXS1WQ	700_ERROR_ROUTINE	5				2				2				320			
NXS1WQ	700_ERROR_ROUTINE_EXIT	1				1				1				0			
NXS2WQ	000_DRIVER	15				7				2				61440			
NXS2WQ	000_STOP_RUN	1				1				1				0			
NXS2WQ	100_HSKP	63				14				2				344962800			
NXS2WQ	100_EXIT	1				1				1				0			
NXS2WQ	110_GETT_AS_OF_DATE	18				5				2				368082			
NXS2WQ	110_EXIT	1				1				1				0			
NXS2WQ	120_REFORMAT_SP_A_FILE .	61				33				2				7134804			
NXS2WQ	120_EXIT	1				1				1				0			
NXS2WQ	200_BUILD_REPORT	18				9				3				421362			
NXS2WQ	200_EXIT	1				1				1				0			
NXS2WQ	210_PROCESS_REC	59				10				2				585427500			
NXS2WQ	210_EXIT	1				1				1				0			
NXS2WQ	220_WRITE_CHANNEL_TOTALS	85				4				2				243343440			
NXS2WQ	220_EXIT	1				1				1				0			
NXS2WQ	230_CONTROL_SPACE_A_DATA	13				21				2				67392			
NXS2WQ	230_EXIT	1				1				1				0			
NXS2WQ	240_WRITE_THEATER_TOTALS	61				7				3				30061044			
NXS2WQ	240_EXIT	1				1				1				0			
NXS2WQ	250_WRITE_MFST_STA_TOTALS	53				7				3				19850832			
NXS2WQ	250_EXIT	1				1				1				0			
NXS2WQ	300_WRAPUP	5				2				2				2000			
NXS2WQ	300_EXIT	1				1				1				0			
NXS2WQ	700_READ_GEN_REC	15				5				2				73500			
NXS2WQ	700_READ_GEN_REC_EXIT	1				1				1				0			
NXS2WQ	700_PROCESS_SP_A_RECS	12				8				3				21168			
NXS2WQ	700_PROCESS_SP_A_RECS_EXIT	1				1				1				0			
NXS2WQ	700_ADD_THTR_SP_A_DATA	12				2				2				43200			
NXS2WQ	700_ADD_THTR_SP_A_DATA_EXIT	1				1				1				0			
NXS2WQ	700_ADD_STA_SP_A_DATA	12				2				2				15552			
NXS2WQ	700_ADD_STA_SP_A_DATA_EXIT	1				1				1				0			
NXS2WQ	700_FORMAT_OUTPUT	33				7				2				23284800			
NXS2WQ	700_FORMAT_OUTPUT_EXIT	1				1				1				0			
NXS2WQ	700_ARMY_OUTPUT	26				12				2				539136			
NXS2WQ	700_ARMY_OUTPUT_EXIT	1				1				1				0			
NXS2WQ	700_ARMY_PAGE_FILLER	4				3				2				400			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
NXS2WQ	700_ARMY_PAGE_FILLER_EXIT	1				1				1				0			
NXS2WQ	700_DLA_OUTPUT	26				12				2				539136			
NXS2WQ	700_DLA_OUTPUT_EXIT	1				1				1				0			
NXS2WQ	700_DLA_PAGE_FILLER	4				3				2				400			
NXS2WQ	700_DLA_PAGE_FILLER_EXIT	1				1				1				0			
NXS2WQ	700_DECA_OUTPUT	26				12				2				281216			
NXS2WQ	700_DECA_OUTPUT_EXIT	1				1				1				0			
NXS2WQ	700_DECA_PAGE_FILLER	4				3				2				400			
NXS2WQ	700_DECA_PAGE_FILLER_EXIT	1				1				1				0			
NXS2WQ	700_USAF_OUTPUT	26				12				2				539136			
NXS2WQ	700_USAF_OUTPUT_EXIT	1				1				1				0			
NXS2WQ	700_USAF_PAGE_FILLER	4				3				2				400			
NXS2WQ	700_USAF_PAGE_FILLER_EXIT	1				1				1				0			
NXS2WQ	700_USMC_OUTPUT	26				12				2				539136			
NXS2WQ	700_USMC_OUTPUT_EXIT	1				1				1				0			
NXS2WQ	700_USMC_PAGE_FILLER	4				3				2				400			
NXS2WQ	700_USMC_PAGE_FILLER_EXIT	1				1				1				0			
NXS2WQ	700_NAVY_OUTPUT	26				12				2				539136			
NXS2WQ	700_NAVY_OUTPUT_EXIT	1				1				1				0			
NXS2WQ	700_NAVY_PAGE_FILLER	4				3				2				400			
NXS2WQ	700_NAVY_PAGE_FILLER_EXIT	1				1				1				0			
NXS2WQ	700_AMC_OUTPUT	18				9				2				839808			
NXS2WQ	700_AMC_OUTPUT_EXIT	1				1				1				0			
NXS2WQ	700_WRITE_AMC_TRAILER	7				3				2				6300			
NXS2WQ	700_WRITE_AMC_TRAILER_EXIT	1				1				1				0			
NXS2WQ	700_WRITE_AMC_HEADERS	12				7				2				5292			
NXS2WQ	700_WRITE_AMC_HEADERS_EXIT	1				1				1				0			
NXS2WQ	700_ERROR_ROUTINE	7				3				2				252			
NXS2WQ	700_ERROR_EXIT	1				1				1				0			
NXS3WQ	000_S3_DRIVER	8				5				2				1800			
NXS3WQ	000_STOP_RUN	1				1				1				0			
NXS3WQ	100_HSKP	29				4				2				2680064			
NXS3WQ	100_EXIT	1				1				1				0			
NXS3WQ	200_BUILD_REPORT	9				10				2				17424			
NXS3WQ	200_EXIT	1				1				1				0			
NXS3WQ	210_PROCESS_REC	7				4				2				567			
NXS3WQ	210_EXIT	1				1				1				0			
NXS3WQ	211_READ_AND_ADD_ONHD_DATA	18				7				2				43218			
NXS3WQ	211_EXIT	1				1				1				0			
NXS3WQ	212_READ_AND_ADD_MVMT_DATA	19				7				2				59584			
NXS3WQ	212_EXIT	1				1				1				0			
NXS3WQ	213_READ_S3_AKF	10				6				2				1440			
NXS3WQ	213_EXIT	1				1				1				0			
NXS3WQ	220_CHANNEL_CHANGE	14				6				2				10976			
NXS3WQ	220_EXIT	1				1				1				0			
NXS3WQ	221_DLA_OUTPUT	14				5				3				57344			
NXS3WQ	221_EXIT	1				1				1				0			
NXS3WQ	222_USAF_OUTPUT	14				5				3				57344			
NXS3WQ	222_EXIT	1				1				1				0			
NXS3WQ	223_NAVY_OUTPUT	14				5				3				57344			
NXS3WQ	223_EXIT	1				1				1				0			
NXS3WQ	224_DECA_OUTPUT	14				5				3				57344			
NXS3WQ	224_EXIT	1				1				1				0			
NXS3WQ	230_MFST_STA_CHANGE	13				6				2				10192			
NXS3WQ	230_EXIT	1				1				1				0			
NXS3WQ	231_DLA_OUTPUT	11				5				2				9900			
NXS3WQ	231_EXIT	1				1				1				0			
NXS3WQ	232_USAF_OUTPUT	11				5				2				9900			
NXS3WQ	232_EXIT	1				1				1				0			
NXS3WQ	233_NAVY_OUTPUT	11				5				2				9900			
NXS3WQ	233_EXIT	1				1				1				0			
NXS3WQ	234_DECA_OUTPUT	11				5				2				9900			
NXS3WQ	234_EXIT	1				1				1				0			
NXS3WQ	300_WRAPUP	3				2				2				0			
NXS3WQ	300_EXIT	1				1				1				0			
NXS3WQ	700_WRITE_HEADERS_DLA	15				10				2				10935			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
NXS3WQ	700_WRITE_HEADERS_DLA_EXIT	1				1				1				0			
NXS3WQ	700_WRITE_HEADERS_USAF	15				10				2				10935			
NXS3WQ	700_WRITE_HEADERS_USAF_EXIT	1				1				1				0			
NXS3WQ	700_WRITE_HEADERS_NAVY	15				10				2				10935			
NXS3WQ	700_WRITE_HEADERS_NAVY_EXIT	1				1				1				0			
NXS3WQ	700_WRITE_HEADERS_DECA	15				10				2				10935			
NXS3WQ	700_WRITE_HEADERS_DECA_EXIT	1				1				1				0			
NXS3WQ	700_FORMAT_OUTPUT	10				2				2				77440			
NXS3WQ	700_FORMAT_OUTPUT_EXIT	1				1				1				0			
NXS3WQ	700_ERROR_ROUTINE	5				2				2				320			
NXS3WQ	700_ERROR_ROUTINE_EXIT	1				1				1				0			
NXT0WQ	000_MAIN_DRIVER	11				6				2				1584			
NXT0WQ	000_EXIT	1				1				1				0			
NXT0WQ	100_HSKP	20				4				2				162000			
NXT0WQ	100_EXIT	1				1				1				0			
NXT0WQ	200_PROGRAM_SELECT	12				3				3				5292			
NXT0WQ	200_EXIT	1				1				1				0			
NXT0WQ	300_WRAPUP	25				3				2				270400			
NXT0WQ	300_EXIT	1				1				1				0			
NXT0WQ	210_PROCESS_INPUT	9				5				2				5184			
NXT0WQ	210_EXIT	1				1				1				0			
NXT0WQ	700_ERROR_PROCESS	5				1				1				500			
NXT0WQ	700_EXIT	1				1				1				0			
NXT1WQ	000_MAIN_DRIVER	4				3				1				64			
NXT1WQ	000_EXIT	1				1				1				0			
NXT1WQ	100_CONTROL	9				6				2				3600			
NXT1WQ	100_EXIT	1				1				1				0			
NXT1WQ	110_O_CALL	16				2				2				102400			
NXT1WQ	110_EXIT	1				1				1				0			
NXT1WQ	120_I_CALL	22				6				2				140800			
NXT1WQ	120_EXIT	1				1				1				0			
NXT1WQ	130_UPDATE	14				5				2				24696			
NXT1WQ	130_EXIT	1				1				1				0			
NXT1WQ	131_ADD	17				2				2				166617			
NXT1WQ	131_EXIT	1				1				1				0			
NXT1WQ	132_CHANGE	32				5				2				903168			
NXT1WQ	132_EXIT	1				1				1				0			
NXT1WQ	133_DELETE	18				4				2				139392			
NXT1WQ	133_EXIT	1				1				1				0			
NXT2WQ	000_MAIN_DRIVER	3				3				1				48			
NXT2WQ	000_EXIT	1				1				1				0			
NXT2WQ	100_CONTROL	9				6				2				3600			
NXT2WQ	100_EXIT	1				1				1				0			
NXT2WQ	110_O_CALL	16				2				2				102400			
NXT2WQ	110_EXIT	1				1				1				0			
NXT2WQ	120_I_CALL	22				6				2				140800			
NXT2WQ	120_EXIT	1				1				1				0			
NXT2WQ	130_UPDATE	11				4				2				6875			
NXT2WQ	130_EXIT	1				1				1				0			
NXT2WQ	131_ADD	16				2				2				102400			
NXT2WQ	131_EXIT	1				1				1				0			
NXT2WQ	132_DELETE	17				4				2				83300			
NXT2WQ	132_EXIT	1				1				1				0			
NXT3WQ	000_MAIN_DRIVER	3				3				1				48			
NXT3WQ	000_EXIT	1				1				1				0			
NXT3WQ	100_CONTROL	9				6				2				3600			
NXT3WQ	100_EXIT	1				1				1				0			
NXT3WQ	110_O_CALL	16				2				2				102400			
NXT3WQ	110_EXIT	1				1				1				0			
NXT3WQ	120_I_CALL	22				6				2				140800			
NXT3WQ	120_EXIT	1				1				1				0			
NXT3WQ	130_UPDATE	15				5				2				47040			
NXT3WQ	130_EXIT	1				1				1				0			
NXT3WQ	131_ADD	17				2				2				166617			
NXT3WQ	131_EXIT	1				1				1				0			
NXT3WQ	132_CHANGE	32				5				2				903168			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts Baseline	October	Januaray	April	McCabe's CC Baseline	October	Januaray	April	Max Nest Baseline	October	Januaray	April	Information Flow Baseline	October	Januaray	April
NXT3WQ	132_EXIT	1				1				1				0			
NXT3WQ	133_DELETE	18				4				2				139392			
NXT3WQ	133_EXIT	1				1				1				0			
NXTYWQ	000_MAIN_DRIVER	6				2				2				24			
NXTYWQ	000_EXIT	1				1				1				0			
NXTYWQ	100_SEND_MENU	15				2				2				96000			
NXTYWQ	100_EXIT	1				1				1				0			
NXTYWQ	200_I_CALL	14				5				2				28350			
NXTYWQ	200_EXIT	1				1				1				0			
NXTZWQ	000_DRIVER	8				3				2				72			
NXTZWQ	000_EXIT	1				1				1				0			
NXTZWQ	100_RSPAWN	26				5				2				103194			
NXTZWQ	100_EXIT	1				1				1				0			
NXTZWQ	200_O_CALL	16				2				2				156816			
NXTZWQ	200_EXIT	1				1				1				0			
NXTZWQ	300_I_CALL	12				3				2				19200			
NXTZWQ	300_EXIT	1				1				1				0			
NXU1WQ	000_L1_KEY_BUILD_DRIVER	28	28			10	10			2	2			2086812	2086812		
NXU1WQ	000_EXIT	1	1			1	1			1	1			0	0		
NXU1WQ	100_PROCESS_DATA_DRIVER	100	100			18	18			3	3			116208400	116208400		
NXU1WQ	100_EXIT	1	1			1	1			1	1			0	0		
NXU1WQ	105_LOAD_PGM_TABLES	22	22			11	11			3	3			371800	371800		
NXU1WQ	105_EXIT	1	1			1	1			1	1			0	0		
NXU1WQ	110_PROCESS_MOVEMENT	58	58			21	21			2	2			28096128	28096128		
NXU1WQ	110_EXIT	1	1			1	1			1	1			0	0		
NXU1WQ	111_READ_MOVEMENT	12	12			4	4			2	2			15552	15552		
NXU1WQ	111_EXIT	1	1			1	1			1	1			0	0		
NXU1WQ	112_SELECT_LG_DELETED_TCMD	16	16			5	5			2	2			129600	129600		
NXU1WQ	112_EXIT	1	1			1	1			1	1			0	0		
NXU1WQ	115_SELECT_L9_MOVEMENT_CONTROL	6	6			6	6			2	2			0	0		
NXU1WQ	1151_FORMAT_L9_MOVEMENT	15	15			5	5			3	3			77760	77760		
NXU1WQ	115_EXIT	1	1			1	1			1	1			0	0		
NXU1WQ	117_SELECT_LB_MOVEMENT_CONTROL	14	14			13	13			2	2			0	0		
NXU1WQ	1171_FORMAT_LB_MOVEMENT	15	15			3	3			2	2			365040	365040		
NXU1WQ	117_EXIT	1	1			1	1			1	1			0	0		
NXU1WQ	118_SELECT_LE_MOVEMENT_CONTROL	8	8			5	5			2	2			0	0		
NXU1WQ	1181_FORMAT_LE_PALLET_MOVEMENT	13	13			3	3			2	2			130000	130000		
NXU1WQ	118_EXIT	1	1			1	1			1	1			0	0		
NXU1WQ	119_SELECT_LF_MOVEMENT_CONTROL	12	12			8	8			2	2			0	0		
NXU1WQ	1191_FORMAT_LF_MOVEMENT	13	13			3	3			2	2			63700	63700		
NXU1WQ	119_EXIT	1	1			1	1			1	1			0	0		
NXU1WQ	11A_SELECT_LH_MOVEMENT_CONTROL	8	8			6	6			2	2			288	288		
NXU1WQ	11A1_FORMAT_LH_PALLET_MOVEMENT	10	10			3	3			2	2			24010	24010		
NXU1WQ	11A_EXIT	1	1			1	1			1	1			0	0		
NXU1WQ	11C_SELECT_S3_MOVEMENT_CONTROL	14	14			16	16			2	2			0	0		
NXU1WQ	11C1_FORMAT_S3_MOVEMENT	12	12			3	3			2	2			34992	34992		
NXU1WQ	11C_EXIT	1	1			1	1			1	1			0	0		
NXU1WQ	11E_SELECT_LP_MOVEMENT_CONTROL	14	14			12	12			3	3			0	0		
NXU1WQ	11E1_FORMAT_LP_MOVEMENT	7	7			2	2			1	1			9072	9072		
NXU1WQ	11E_EXIT	1	1			1	1			1	1			0	0		
NXU1WQ	120_PROCESS_ON_HAND	37	37			16	16			2	2			4795200	4795200		
NXU1WQ	120_EXIT	1	1			1	1			1	1			0	0		
NXU1WQ	121_READ_ON_HAND	11	11			4	4			2	2			9900	9900		
NXU1WQ	121_EXIT	1	1			1	1			1	1			0	0		
NXU1WQ	128_FORMAT_LF_ON_HAND	21	21			12	12			2	2			302400	302400		
NXU1WQ	128_EXIT	1	1			1	1			1	1			0	0		
NXU1WQ	129_FORMAT_S3_ON_HAND	20	20			22	22			2	2			233280	233280		
NXU1WQ	129_EXIT	1	1			1	1			1	1			0	0		
NXU1WQ	200_LOAD_FILES_DRIVER	21	21			11	11			2	2			134400	134400		
NXU1WQ	200_EXIT	1	1			1	1			1	1			0	0		
NXU1WQ	210_ALLOCATE_AKF_FILE	19	29			11	14			2	2			134064	1160000		
NXU1WQ	210_EXIT	1	1			1	1			1	1			0	0		
NXU1WQ	220_AKF_FILE_BUILD	8	8			5	5			2	2			1152	1152		
NXU1WQ	220_EXIT	1	1			1	1			1	1			0	0		
NXU1WQ	230_RELEASE_AKF_FILE	14	14			5	5			2	2			113400	113400		
NXU1WQ	230_EXIT	1	1			1	1			1	1			0	0		

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts Baseline	October	Januaray	April	McCabe's CC Baseline	October	Januaray	April	Max Nest Baseline	October	Januaray	April	Information Flow Baseline	October	Januaray	April
NXU1WQ	240_AKF_CLEANUP	20	20			10	10			2	2			327680	327680		
NXU1WQ	240_EXIT	1	1			1	1			1	1			0	0		
NXU1WQ	300_REBUILD_PROCESS	21	21			6	6			2	2			18900	18900		
NXU1WQ	300_EXIT	1	1			1	1			1	1			0	0		
NXU1WQ	310_FIND_RC	5	5			3	3			2	2			45	45		
NXU1WQ	310_EXIT	1	1			1	1			1	1			0	0		
NXU1WQ	320_LOAD_TEMP_AKF	8	8			4	4			2	2			512	512		
NXU1WQ	320_EXIT	1	1			1	1			1	1			0	0		
NXU1WQ	700_ADDFIL_ERROR_CHECK	12	12			4	4			2	2			43200	43200		
NXU1WQ	700_ADDFIL_ERROR_CHECK_EXIT	1	1			1	1			1	1			0	0		
NXU1WQ	700_SEARCH_PGM_STA_TABLE	6	6			6	6			2	2			1176	1176		
NXU1WQ	700_SEARCH_PGM_STA_TABLE_EXIT	1	1			1	1			1	1			0	0		
NXU1WQ	700_SEARCH_CHNL_TABLE_DTL	11	11			7	7			2	2			14256	14256		
NXU1WQ	700_SEARCH_CHNL_TABLE_DTL_EXIT	1	1			1	1			1	1			0	0		
NXU1WQ	700_SEARCH_CHNL_TABLE_PLT	11	11			7	7			2	2			14256	14256		
NXU1WQ	700_SEARCH_CHNL_TABLE_PLT_EXIT	1	1			1	1			1	1			0	0		
NXU1WQ	700_CHECK_NAF_INDICATORS	18	18			5	5			2	2			10368	10368		
NXU1WQ	700_CHECK_NAF_INDICATORS_EXIT	1	1			1	1			1	1			0	0		
NXU1WQ	700_FORMAT_NAF	24	24			25	25			2	2			10584	10584		
NXU1WQ	700_FORMAT_NAF_EXIT	1	1			1	1			1	1			0	0		
NXU3WQ	000_U3_DRIVER	24				11				2				345600			
NXU3WQ	000_STOP_RUN	1				1				1				0			
NXU3WQ	100_HSKP	27				4				2				2193075			
NXU3WQ	100_EXIT	1				1				1				0			
NXU3WQ	200_BUILD_REPORT	9				10				2				17424			
NXU3WQ	200_EXIT	1				1				1				0			
NXU3WQ	210_PROCESS_REC	7				4				2				567			
NXU3WQ	210_EXIT	1				1				1				0			
NXU3WQ	211_READ_AND_ADD_ONHD_DATA	18				7				2				43218			
NXU3WQ	211_EXIT	1				1				1				0			
NXU3WQ	212_READ_AND_ADD_MVMT_DATA	19				7				2				59584			
NXU3WQ	212_EXIT	1				1				1				0			
NXU3WQ	213_READ_U3_AKF	10				6				2				1440			
NXU3WQ	213_EXIT	1				1				1				0			
NXU3WQ	215_NO_DATA	10				6				2				5760			
NXU3WQ	215_NO_DATA_EXIT	1				1				1				0			
NXU3WQ	220_CHANNEL_CHANGE	14				6				2				10976			
NXU3WQ	220_EXIT	1				1				1				0			
NXU3WQ	221_DLA_OUTPUT	14				5				3				57344			
NXU3WQ	221_EXIT	1				1				1				0			
NXU3WQ	222_USAF_OUTPUT	14				5				3				57344			
NXU3WQ	222_EXIT	1				1				1				0			
NXU3WQ	223_NAVY_OUTPUT	14				5				3				57344			
NXU3WQ	223_EXIT	1				1				1				0			
NXU3WQ	224_DECA_OUTPUT	14				5				3				57344			
NXU3WQ	224_EXIT	1				1				1				0			
NXU3WQ	230_MFST_STA_CHANGE	13				6				2				10192			
NXU3WQ	230_EXIT	1				1				1				0			
NXU3WQ	231_DLA_OUTPUT	11				5				2				9900			
NXU3WQ	231_EXIT	1				1				1				0			
NXU3WQ	232_USAF_OUTPUT	11				5				2				9900			
NXU3WQ	232_EXIT	1				1				1				0			
NXU3WQ	233_NAVY_OUTPUT	10				4				2				6250			
NXU3WQ	233_EXIT	1				1				1				0			
NXU3WQ	234_DECA_OUTPUT	11				4				2				6875			
NXU3WQ	234_EXIT	1				1				1				0			
NXU3WQ	300_WRAPUP	3				2				2				0			
NXU3WQ	300_EXIT	1				1				1				0			
NXU3WQ	700_WRITE_HEADERS_DLA	15				10				2				16335			
NXU3WQ	700_WRITE_HEADERS_DLA_EXIT	1				1				1				0			
NXU3WQ	700_WRITE_HEADERS_DECA	15				10				2				16335			
NXU3WQ	700_WRITE_HEADERS_DECA_EXIT	1				1				1				0			
NXU3WQ	700_WRITE_HEADERS_USAF	15				10				2				16335			
NXU3WQ	700_WRITE_HEADERS_USAF_EXIT	1				1				1				0			
NXU3WQ	700_WRITE_HEADERS_NAVY	15				10				2				16335			
NXU3WQ	700_WRITE_HEADERS_NAVY_EXIT	1				1				1				0			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts Baseline	October	Januaray	April	McCabe's CC Baseline	October	Januaray	April	Max Nest Baseline	October	Januaray	April	Information Flow Baseline	October	Januaray	April
NXU3WQ	700_FORMAT_OUTPUT	10				2				2				77440			
NXU3WQ	700_FORMAT_OUTPUT_EXIT	1				1				1				0			
NXU3WQ	700_ERROR_ROUTINE	5				2				2				320			
NXU3WQ	700_ERROR_ROUTINE_EXIT	1				1				1				0			
NXU9WQ	000_U9_CONTROL_DRIVER	15				7				2				26460			
NXU9WQ	000_DRIVER_COMPLETE	6				3				2				294			
NXU9WQ	100_HSKP_DRIVER	33				7				2				8250000			
NXU9WQ	100_EXIT	1				1				1				0			
NXU9WQ	200_UPDATE_DRIVER	37				29				4				447700			
NXU9WQ	200_EXIT	1				1				1				0			
NXU9WQ	210_CREATE	7				5				2				5488			
NXU9WQ	210_EXIT	1				1				1				0			
NXU9WQ	215_NO_DATA	5				2				2				80			
NXU9WQ	215_EXIT	1				1				1				0			
NXU9WQ	220_COPY	5				4				2				1620			
NXU9WQ	220_EXIT	1				1				1				0			
NXU9WQ	230_UPDATE	39				21				3				5054400			
NXU9WQ	230_EXIT	1				1				1				0			
NXU9WQ	231_SUPER_PRIORITY_ADD	6				2				2				2400			
NXU9WQ	231_ADD_EXIT	1				1				1				0			
NXU9WQ	231_SUPER_PRIORITY_SUBTRACT	10				2				2				16000			
NXU9WQ	231_SUBT_EXIT	1				1				1				0			
NXU9WQ	232_PRIORITY_1_2_3_ADD	6				2				2				2400			
NXU9WQ	232_ADD_EXIT	1				1				1				0			
NXU9WQ	232_PRIORITY_1_2_3_SUBTRACT	10				2				2				16000			
NXU9WQ	232_SUBT_EXIT	1				1				1				0			
NXU9WQ	233_SUPER_THRU_3_ADD	7				2				2				5488			
NXU9WQ	233_ADD_EXIT	1				1				1				0			
NXU9WQ	233_SUPER_THRU_3_SUBTRACT	11				2				2				34496			
NXU9WQ	233_SUBT_EXIT	0				0				0				0			
NXU9WQ	234_PRIORITY_4_ADD	6				2				2				2400			
NXU9WQ	234_ADD_EXIT	1				1				1				0			
NXU9WQ	234_PRIORITY_4_SUBTRACT	10				2				2				16000			
NXU9WQ	234_SUBT_EXIT	1				1				1				0			
NXU9WQ	300_BUILD_REPORT_DRIVER	35				8				2				2551500			
NXU9WQ	300_EXIT	1				1				1				0			
NXU9WQ	310_TYPE_PROCESS	86				7				3				267605856			
NXU9WQ	310_EXIT	1				1				1				0			
NXU9WQ	311_READ_NEW_SUBT	6				3				2				864			
NXU9WQ	311_EXIT	1				1				1				0			
NXU9WQ	320_SUB_TOTAL_OUTPUT	62				8				2				57139200			
NXU9WQ	320_EXIT	1				1				1				0			
NXU9WQ	330_STN_TOTAL_OUTPUT	41				5				2				12492864			
NXU9WQ	330_EXIT	1				1				1				0			
NXU9WQ	400_WRAP_UP	5				2				2				0			
NXU9WQ	400_EXIT	1				1				1				0			
NXU9WQ	700_WRITE_TRAILER	7				3				2				17500			
NXU9WQ	700_WRITE_TRAILER_EXIT	1				1				1				0			
NXU9WQ	700_WRITE_HEADA	4				3				2				1024			
NXU9WQ	700_WRITE_HEADA_EXIT	1				1				1				0			
NXU9WQ	700_WRITE_SUB_HEADINGS	18				11				2				101250			
NXU9WQ	700_WRITE_SUB_HEADINGS_EXIT	1				1				1				0			
NXU9WQ	700_NO_DATA_RPT	10				8				2				810			
NXU9WQ	700_NO_DATA_RPT_EXIT	1				1				1				0			
NXUBWQ	000_DRIVER	22				10				2				495000			
NXUBWQ	000_STOP_RUN	1				1				1				0			
NXUBWQ	100_HOUSEKEEPING	50				11				3				79380000			
NXUBWQ	100_EXIT	1				1				1				0			
NXUBWQ	110_LOAD_MAI_TABLE	6				2				1				1350			
NXUBWQ	110_EXIT	1				1				1				0			
NXUBWQ	200_UPDATE_DRIVER	6				4				2				384			
NXUBWQ	200_EXIT	1				1				1				0			
NXUBWQ	210_READ_CONTROL	8				5				2				1800			
NXUBWQ	210_EXIT	1				1				1				0			
NXUBWQ	211_READ_AKF	7				3				2				1575			
NXUBWQ	211_EXIT	1				1				1				0			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts Baseline	October	Januaray	April	McCabe's CC Baseline	October	Januaray	April	Max Nest Baseline	October	Januaray	April	Information Flow Baseline	October	Januaray	April
NXUBWQ	212_READ_DAILY_MOVEMENT	12				4				2				9408			
NXUBWQ	212_EXIT	1				1				1				0			
NXUBWQ	213_READ_OLD_CUM_MVMT	10				3				2				12960			
NXUBWQ	213_EXIT	1				1				1				0			
NXUBWQ	215_NO_DATA	4				2				2				36			
NXUBWQ	215_EXIT	1				1				1				0			
NXUBWQ	220_UPDATE_AND_WRITE_CONTROL	14				6				2				12600			
NXUBWQ	220_EXIT	1				1				1				0			
NXUBWQ	221_WRITE_CUM_AND_DAILY_REC	12				4				2				37632			
NXUBWQ	221_EXIT	1				1				1				0			
NXUBWQ	222_CREATE_NEW_CUM_REC	87				47				3				74278512			
NXUBWQ	222_CONTINUE	16				6				2				46656			
NXUBWQ	222_EXIT	1				1				1				0			
NXUBWQ	223_UPDATE_CUM_REC	156				54				4				215744256			
NXUBWQ	223_EXIT	1				1				1				0			
NXUBWQ	300_REPORT_DRIVER	6				3				2				486			
NXUBWQ	300_EXIT	1				1				1				0			
NXUBWQ	310_READ_DAILY_AND_CUM	11				4				2				26411			
NXUBWQ	310_EXIT	1				1				1				0			
NXUBWQ	320_FORMAT_AND_WRITE_CONTROL	12				9				2				24300			
NXUBWQ	320_EXIT	1				1				1				0			
NXUBWQ	321_SUB_AREA_PROCESS	14				4				2				68600			
NXUBWQ	321_EXIT	1				1				1				0			
NXUBWQ	322_MAI_PROCESS	16				5				2				123904			
NXUBWQ	322_EXIT	1				1				1				0			
NXUBWQ	323_STATION_PROCESS	96				11				2				3538944			
NXUBWQ	323_EXIT	1				1				1				0			
NXUBWQ	324_APOD_PROCESS	53				15				4				2588573			
NXUBWQ	324_EXIT	1				1				1				0			
NXUBWQ	330_WRITE_GRAND_TOTALS	5				2				2				180			
NXUBWQ	330_EXIT	1				1				1				0			
NXUBWQ	331_WRITE_21ST_AF_TOTALS	44				7				2				228096			
NXUBWQ	331_EXIT	1				1				1				0			
NXUBWQ	332_WRITE_22ND_AF_TOTALS	44				7				2				228096			
NXUBWQ	332_EXIT	1				1				1				0			
NXUBWQ	333_WRITE_AMC_HQ_TOTALS	57				7				2				295488			
NXUBWQ	333_EXIT	1				1				1				0			
NXUBWQ	400_WRAPUP	3				2				2				0			
NXUBWQ	400_EXIT	1				1				1				0			
NXUBWQ	700_COMPUTE_PROCESS	191				14				2				3482483900			
NXUBWQ	700_COMPUTE_PROCESS_EXIT	1				1				1				0			
NXUBWQ	700_WRITE_HEADER_PART_1	18				10				3				130050			
NXUBWQ	700_WRITE_HEADER_PART1_EXIT	1				1				1				0			
NXUBWQ	700_WRITE_HEADER_PART_2	9				8				2				2916			
NXUBWQ	700_WRITE_HEADER_PART2_EXIT	1				1				1				0			
NXUBWQ	700_WRITE_AF_TOTAL_HDR	9				8				2				2916			
NXUBWQ	700_WRITE_AF_TOTAL_HDR_EXIT	1				1				1				0			
NXUBWQ	700_WRITE_AMC_TOTAL_HDR	9				8				2				2304			
NXUBWQ	700_WRITE_AMC_TOTAL_HDR_EXIT	1				1				1				0			
NXUBWQ	700_WRITE_TRAILER	14				5				2				229376			
NXUBWQ	700_WRITE_TRAILER_EXIT	1				1				1				0			
NXUBWQ	700_SEARCH_MAI_CODE	6				4				2				1176			
NXUBWQ	700_SEARCH_MAI_CODE_EXIT	1				1				1				0			
NXUBWQ	700_NO_DATA_RPT	12				10				2				972			
NXUBWQ	700_NO_DATA_RPT_EXIT	1				1				1				0			
NXUEWQ	000_LE_DRIVER	15				8				3				73500			
NXUEWQ	000_STOP_RUN	1				1				1				0			
NXUEWQ	100_HOUSEKEEPING	21				2				1				2601984			
NXUEWQ	100_EXIT	1				1				1				0			
NXUEWQ	200_BUILD_REPORT	7				1				1				252			
NXUEWQ	200_EXIT	1				1				1				0			
NXUEWQ	210_READ_DETAIL_AND_NEW_AKF	28				5				3				3568572			
NXUEWQ	210_EXIT	1				1				1				0			
NXUEWQ	215_NO_DATA	4				1				1				16			
NXUEWQ	215_EXIT	1				1				1				0			
NXUEWQ	220_PROCESS_PRIORITY_DATA	21				25				3				108864			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
NXUEWQ	220_EXIT	1				1				1				0			
NXUEWQ	230_PROCESS_DETAIL	21				19				3				571725			
NXUEWQ	230_EXIT	1				1				1				0			
NXUEWQ	231_WRITE_DETAIL	36				7				2				33246756			
NXUEWQ	231_EXIT	1				1				1				0			
NXUEWQ	240_PROCESS_MANIFEST_DEST	25				17				3				1440000			
NXUEWQ	240_EXIT	1				1				1				0			
NXUEWQ	241_WRITE_MANIFEST_DEST	20				4				1				1479680			
NXUEWQ	241_EXIT	1				1				1				0			
NXUEWQ	250_PROCESS_MISSION	27				16				3				1529388			
NXUEWQ	250_EXIT	1				1				1				0			
NXUEWQ	251_WRITE_PRI1_3_TOTAL	14				2				1				129024			
NXUEWQ	251_EXIT	1				1				1				0			
NXUEWQ	252_WRITE_TP4_TOTAL	19				3				2				393984			
NXUEWQ	252_EXIT	1				1				1				0			
NXUEWQ	253_WRITE_MISSION	23				5				2				1907712			
NXUEWQ	253_EXIT	1				1				1				0			
NXUEWQ	260_PROCESS_STATION	40				17				3				14113440			
NXUEWQ	260_EXIT	1				1				1				0			
NXUEWQ	261_WRITE_STATION	18				3				1				911250			
NXUEWQ	261_EXIT	1				1				1				0			
NXUEWQ	300_WRAPUP	2				1				1				0			
NXUEWQ	300_EXIT	1				1				1				0			
NXUEWQ	700_WRITE_TRAILER	6				2				1				15000			
NXUEWQ	700_WRITE_TRAILER_EXIT	1				1				1				0			
NXUEWQ	700_WRITE_HEADERS	9				7				1				8100			
NXUEWQ	700_WRITE_HEADERS_EXIT	1				1				1				0			
NXUEWQ	700_ERROR_ROUTINE	6				1				1				0			
NXUEWQ	700_ERROR_ROUTINE_EXIT	1				1				1				0			
NXUEWQ	700_NO_DATA_RPT	8				8				1				512			
NXUEWQ	700_NO_DATA_RPT_EXIT	1				1				1				0			
NXUFWQ	000_UF_DRIVER	15				10				2				96000			
NXUFWQ	000_STOP_RUN	1				1				1				0			
NXUFWQ	100_HSKP	63				14				3				50014503			
NXUFWQ	100_EXIT	1				1				1				0			
NXUFWQ	110_LOAD_STATION_TABLE	22				9				3				79200			
NXUFWQ	110_EXIT	1				1				1				0			
NXUFWQ	120_RESEQUENCE_SP_A_FILE	6				3				2				600			
NXUFWQ	120_EXIT	1				1				1				0			
NXUFWQ	121_PROCESS_SPACE_A_FILE	9				5				2				1296			
NXUFWQ	121_EXIT	1				1				1				0			
NXUFWQ	200_GEN_FILE_UPDATE	49				16				4				2480625			
NXUFWQ	200_EXIT	1				1				1				0			
NXUFWQ	210_UPDATE_WITH_TEMP_GEN_REC	40				3				2				7464960			
NXUFWQ	210_EXIT	1				1				1				0			
NXUFWQ	215_NO_DATA	5				2				2				80			
NXUFWQ	215_EXIT	1				1				1				0			
NXUFWQ	220_UPDATE_WITH_TC_REC	14				8				3				22400			
NXUFWQ	220_EXIT	1				1				1				0			
NXUFWQ	221_PROCESS_MVMT_LIFT_24	49				20				8				1254400			
NXUFWQ	221_EXIT	1				1				1				0			
NXUFWQ	222_PROCESS_MVMT_LIFT	35				20				8				283500			
NXUFWQ	222_EXIT	1				1				1				0			
NXUFWQ	223_PROCESS_MVMT_SUBT	35				20				8				283500			
NXUFWQ	223_EXIT	1				1				1				0			
NXUFWQ	224_PROCESS_ONHAND	35				20				8				283500			
NXUFWQ	224_EXIT	1				1				1				0			
NXUFWQ	300_BUILD_REPORT	8				6				2				4608			
NXUFWQ	300_EXIT	1				1				1				0			
NXUFWQ	310_HSKP	13				3				2				63700			
NXUFWQ	310_EXIT	1				1				1				0			
NXUFWQ	320_BUILD_PORTS_REPORT	14				7				2				204974			
NXUFWQ	320_EXIT	1				1				1				0			
NXUFWQ	321_PROCESS_GEN_REC	7				3				2				0			
NXUFWQ	321_EXIT	1				1				1				0			
NXUFWQ	322_PROCESS_SP_ASSIGN_REC	7				4				3				700			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts Baseline	October	Januaray	April	McCabe's CC Baseline	October	Januaray	April	Max Nest Baseline	October	Januaray	April	Information Flow Baseline	October	Januaray	April
NXUFWQ	322_EXIT	1				1				1				0			
NXUFWQ	3221_LOAD_SP_ASSIGN_REC	51				3				2				249900			
NXUFWQ	3221_EXIT	1				1				1				0			
NXUFWQ	330_WRITE_HQS_TOTALS	14				2				2				6174			
NXUFWQ	330_EXIT	1				1				1				0			
NXUFWQ	340_DISPLAY_COMPUTES	26				2				2				1124864			
NXUFWQ	340_EXIT	1				1				1				0			
NXUFWQ	400_WRAPUP	9				3				2				9801			
NXUFWQ	400_EXIT	1				1				1				0			
NXUFWQ	700_ERROR_ROUTINE	4				2				2				256			
NXUFWQ	700_ERROR_EXIT	1				1				1				0			
NXUFWQ	700_SEARCH_STATION_TABLE	8				7				2				512			
NXUFWQ	700_SEARCH_EXIT	1				1				1				0			
NXUFWQ	700_READ_UF_AKF	10				5				2				1440			
NXUFWQ	700_READ_AKF_EXIT	1				1				1				0			
NXUFWQ	700_READ_TEMP_GEN_REC	13				5				2				5733			
NXUFWQ	700_READ_TEMP_GEN_EXIT	1				1				1				0			
NXUFWQ	700_READ_TC_OH_REC	11				4				2				3564			
NXUFWQ	700_READ_TC_OH_EXIT	1				1				1				0			
NXUFWQ	700_READ_TC_MV_REC	12				4				2				6912			
NXUFWQ	700_READ_TC_MV_EXIT	1				1				1				0			
NXUFWQ	700_READ_GEN_REC	9				4				2				1296			
NXUFWQ	700_READ_GEN_REC_EXIT	1				1				1				0			
NXUFWQ	700_READ_SPACE_A_FILE	7				4				2				448			
NXUFWQ	700_READ_SPACE_A_FILE_EXIT	1				1				1				0			
NXUFWQ	700_WRITE_OUTPUT	47				18				2				5306112			
NXUFWQ	700_WRITE_OUTPUT_EXIT	1				1				1				0			
NXUFWQ	700_CONVERT_DATA	47				3				2				114086108			
NXUFWQ	700_CONVERT_DATA_EXIT	1				1				1				0			
NXUFWQ	700_LOAD_AS_OF_DATE	15				6				2				181500			
NXUFWQ	700_LOAD_AS_OF_EXIT	1				1				1				0			
NXUFWQ	700_NO_DATA_RPT	10				9				2				1000			
NXUFWQ	700_NO_DATA_RPT_EXIT	1				1				1				0			
NXUGWQ	000_DRIVER	12				7				4				27648			
NXUGWQ	000_STOP_RUN	1				1				1				0			
NXUGWQ	100_HOUSEKEEPING	27				5				3				6750000			
NXUGWQ	100_EXIT	1				1				1				0			
NXUGWQ	200_PROCESS_RECORDS	15				7				2				73500			
NXUGWQ	200_EXIT	1				1				1				0			
NXUGWQ	210_PROCESS_NEW_MFST_STATION	13				4				2				46800			
NXUGWQ	210_EXIT	1				1				1				0			
NXUGWQ	215_NO_DATA	6				3				1				486			
NXUGWQ	215_NO_DATA_EXIT	1				1				1				0			
NXUGWQ	220_WRITE_PART_TWO_HEADING	13				3				2				16848			
NXUGWQ	220_EXIT	1				1				1				0			
NXUGWQ	230_PRODUCE_DETAIL_LINE	10				4				2				7840			
NXUGWQ	230_EXIT	1				1				1				0			
NXUGWQ	231_FORMAT_DETAIL_LINE	39				3				2				35942400			
NXUGWQ	231_EXIT	1				1				1				0			
NXUGWQ	300_WRAPUP	2				1				1				0			
NXUGWQ	300_EXIT	1				1				1				0			
NXUGWQ	700_READ_AKF_AND_PZ1	11				3				1				6336			
NXUGWQ	700_READ_EXIT	1				1				1				0			
NXUGWQ	700_WRITE_TRAILER	9				3				2				20736			
NXUGWQ	700_WRITE_TRAILER_EXIT	1				1				1				0			
NXUGWQ	700_WRITE_HEADINGS	12				8				2				6912			
NXUGWQ	700_WRITE_HEADINGS_EXIT	1				1				1				0			
NXUGWQ	700_ERROR_ROUTINE	6				1				1				0			
NXUGWQ	700_ERROR_ROUTINE_EXIT	1				1				1				0			
NXUGWQ	700_NO_DATA_HDRS	9				8				1				576			
NXUGWQ	700_NO_DATA_HDRS_EXIT	1				1				1				0			
NXUHWQ	000_UH_DRIVER	17				9				3				131648			
NXUHWQ	000_STOP_RUN	1				1				1				0			
NXUHWQ	100_HSKP	32				6				3				8820000			
NXUHWQ	100_EXIT	1				1				1				0			
NXUHWQ	200_PROCESS	14				3				2				42350			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
NXUHWQ	200_EXIT	1				1				1				0			
NXUHWQ	210_PROCESS_DETAILS	21				7				2				162624			
NXUHWQ	210_EXIT	1				1				1				0			
NXUHWQ	211_FORMAT_REPORT	36				2				2				50979600			
NXUHWQ	211_EXIT	1				1				1				0			
NXUHWQ	212_UPDATE_COUNTERS	135				38				2				34292160			
NXUHWQ	212_EXIT	1				1				1				0			
NXUHWQ	215_NO_DATA	5				2				2				80			
NXUHWQ	215_EXIT	1				1				1				0			
NXUHWQ	220_PROCESS_TOTALS	4				2				2				64			
NXUHWQ	220_EXIT	1				1				1				0			
NXUHWQ	221_FORMAT_TOTALS	65				2				2				1089986625			
NXUHWQ	221_EXIT	1				1				1				0			
NXUHWQ	222_WRITE_TOTALS	32				31				2				115200			
NXUHWQ	222_EXIT	1				1				1				0			
NXUHWQ	300_WRAPUP	3				2				2				0			
NXUHWQ	300_EXIT	1				1				1				0			
NXUHWQ	700_WRITE_HEADER_PART_1	10				8				2				25000			
NXUHWQ	700_WRITE_HEADER_PART1_EXIT	1				1				1				0			
NXUHWQ	700_WRITE_HEADER_PART_2	7				6				2				1008			
NXUHWQ	700_WRITE_HEADER_PART2_EXIT	1				1				1				0			
NXUHWQ	700_WRITE_TRAILER	7				3				2				8575			
NXUHWQ	700_WRITE_TRAILER_EXIT	1				1				1				0			
NXUHWQ	700_ERROR_ROUTINE	5				2				2				0			
NXUHWQ	700_ERROR_ROUTINE_EXIT	1				1				1				0			
NXUHWQ	700_NO_DATA_RPT	10				10				2				1000			
NXUHWQ	700_NO_DATA_RPT_EXIT	1				1				1				0			
NXUPWQ	000_UP_DRIVER	15				8				2				54000			
NXUPWQ	000_STOP_RUN	1				1				1				0			
NXUPWQ	100_HSKP	19				2				1				1543275			
NXUPWQ	100_EXIT	1				1				1				0			
NXUPWQ	200_BUILD_REPORT	18				4				3				373248			
NXUPWQ	200_EXIT	1				1				1				0			
NXUPWQ	210_READ_UP_AKF	4				2				1				64			
NXUPWQ	210_EXIT	1				1				1				0			
NXUPWQ	215_NO_DATA	7				2				1				1008			
NXUPWQ	215_EXIT	1				1				1				0			
NXUPWQ	220_PROCESS_REPORT_DATA	17				6				3				88128			
NXUPWQ	220_EXIT	1				1				1				0			
NXUPWQ	221_WRITE_APOD_LINE	14				3				2				83006			
NXUPWQ	221_EXIT	1				1				1				0			
NXUPWQ	222_WRITE_STATION_TOTALS	15				4				2				88935			
NXUPWQ	222_EXIT	1				1				1				0			
NXUPWQ	230_WRITE_GRAND_TOTALS	8				2				1				6272			
NXUPWQ	230_EXIT	1				1				1				0			
NXUPWQ	300_WRAPUP	2				1				1				0			
NXUPWQ	300_EXIT	1				1				1				0			
NXUPWQ	700_READ_AND_ADD	11				2				1				13475			
NXUPWQ	700_READ_EXIT	1				1				1				0			
NXUPWQ	700_WRITE_TRAILER	6				2				1				9600			
NXUPWQ	700_WRITE_TRAILER_EXIT	1				1				1				0			
NXUPWQ	700_WRITE_HEADERS	8				6				1				3200			
NXUPWQ	700_WRITE_HEADERS_EXIT	1				1				1				0			
NXUPWQ	700_ERROR_ROUTINE	6				1				1				0			
NXUPWQ	700_ERROR_ROUTINE_EXIT	1				1				1				0			
NXUXWQ	000_DRIVER	2				1				1				0			
NXUXWQ	000_STOP_RUN	1				1				1				0			
NXUXWQ	100_SPAWN_U0	9				1				1				18225			
NXUXWQ	100_EXIT	1				1				1				0			
NXUXWQ	110_CHECK_R_SPAWN_ERR	5				4				2				20			
NXUXWQ	110_EXIT	1				1				1				0			
NXUXWQ	111_RWAIT	7				2				2				9072			
NXUXWQ	111_RWAIT_EXIT	1				1				1				0			
TPFOWQ	0000_MAIN	8				2				2				2592			
TPFOWQ	0000_EXIT	2				2				2				0			
TPFOWQ	0000_EXIT_PROGRAM	1				1				1				0			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
TPFOWQ	1000_CHECK_STATIS	27				17				6				944163			
TPFOWQ	1000_EXIT	0				0				0				0			
TPFOWQ	2000_VALIDATE_DEVICE	25				14				5				828100			
TPFOWQ	2000_EXIT	0				0				0				0			
TPFOWQ	2100_VALIDATE_CRT	7				5				3				1792			
TPFOWQ	2100_EXIT	0				0				0				0			
TPFOWQ	2200_VALIDATE_PBF	14				8				5				33614			
TPFOWQ	2200_EXIT	0				0				0				0			
TPFOWQ	2300_VALIDATE_ABF	29				17				6				2145536			
TPFOWQ	2300_EXIT	0				0				0				0			
TPFOWQ	2400_VALIDATE_MINI	38				23				4				4522950			
TPFOWQ	2400_EXIT	0				0				0				0			
TPFOWQ	2500_VALIDATE_PPAL	4				5				3				144			
TPFOWQ	2500_EXIT	0				0				0				0			
TPFOWQ	3000_PROCESS_MESSAGE	26				5				4				7514			
TPFOWQ	3000_EXIT	0				0				0				0			
TPFOWQ	4000_SETUP_MESSAGE	8				5				3				10368			
TPFOWQ	4000_EXIT	0				0				0				0			
TPFOWQ	4010_SETUP_PRINT_MESSAGE	54				6				2				33106806			
TPFOWQ	4010_EXIT	0				0				0				0			
TPFOWQ	4100_ELIMINATE_DUPLICATES	15				3				2				8640			
TPFOWQ	4100_EXIT	0				0				0				0			
TPFOWQ	4200_VALIDATE_OUT_IDS	36				6				3				298116			
TPFOWQ	4200_EXIT	0				0				0				0			
TPFOWQ	4300_STORE_DTM_RECORD	37				3				2				15632500			
TPFOWQ	4300_EXIT	0				0				0				0			
TPFOWQ	5000_STORE_MESSAGE	30				14				4				3468000			
TPFOWQ	5000_EXIT	0				0				0				0			
TPFOWQ	5010_STORE_PRINT_MESSAGE	37				4				2				362637			
TPFOWQ	5010_EXIT	0				0				0				0			
TPFOWQ	6000_FINISH_MESSAGE	18				6				2				106722			
TPFOWQ	6000_EXIT	0				0				0				0			
TPFOWQ	6010_FINISH_PRINT_MESSAGE	35				11				4				15571115			
TPFOWQ	6010_EXIT	0				0				0				0			
TPFOWQ	9000_ERR_00	3				2				2				108			
TPFOWQ	9000_ERR_01	2				1				1				0			
TPFOWQ	9000_ERR_02	2				1				1				0			
TPFOWQ	9000_ERR_03	2				1				1				32			
TPFOWQ	9000_ERR_04	2				1				1				32			
TPFOWQ	9000_ERR_05	2				1				1				8			
TPFOWQ	9000_ERR_06	2				1				1				32			
TPFOWQ	9000_ERR_07	2				1				1				32			
TPFOWQ	9000_ERR_08	2				1				1				8			
TPFOWQ	9000_ERR_09	2				1				1				288			
TPFOWQ	9000_ERR_11	2				1				1				8			
TPFOWQ	9000_ERR_12	2				1				1				8			
TPFOWQ	9000_ERR_13	2				1				1				8			
TPFOWQ	9000_ERR_14	2				1				1				8			
TPFOWQ	9000_ERR_15	2				1				1				8			
TPFOWQ	9000_ERR_16	2				1				1				8			
TPFOWQ	9000_ERR_17	2				1				1				72			
TPFOWQ	9000_ERR_18	2				1				1				8			
TPFOWQ	9000_ERR_19	3				2				2				27			
TPFOWQ	9000_ERR_20	2				1				1				8			
TPFOWQ	9000_ERR_21	2				1				1				8			
TPFOWQ	9000_ERR_22	6				1				1				2904			
TPFOWQ	9000_ERR_30	2				1				1				8			
TPFOWQ	9000_ERR_31	2				1				1				8			
TPFOWQ	9000_ERR_32	2				1				1				8			
TPFOWQ	9000_ERR_33	2				1				1				32			
TPFOWQ	9000_ERR_34	2				1				1				32			
TPFOWQ	9000_ERR_35	2				1				1				8			
TPFOWQ	9000_ERR_36	2				1				1				8			
TPFOWQ	9000_ERR_40	2				1				1				288			
TPFOWQ	9000_ERR_41	2				1				1				8			
TPFOWQ	9000_ERR_42	2				1				1				8			

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
TPFOWQ	9000_ERR_43	2				1				1				0			
TPFOWQ	9000_ERR_44	2				1				1				8			
TPFOWQ	9000_ERR_99	6				2				2				4704			
TPFOWQ	9100_ERR_CLEANUP	17				6				3				6284288			
TPFOWQ	9100_EXIT	0				0				0				0			
NXIEWQ	000_IE_DRIVER		7				3				2				448		
NXIEWQ	000_STOP_RUN		1				1				1				0		
NXIEWQ	100_HSKP		38				6				2				30711638		
NXIEWQ	100_EXIT		1				1				1				0		
NXIEWQ	110_SELECT_RECORDS		38				19				2				5429592		
NXIEWQ	110_EXIT		1				1				1				0		
NXIEWQ	200_REPORT_BUILDER		5				4				2				1125		
NXIEWQ	200_EXIT		1				1				1				0		
NXIEWQ	210_NAF_LOOP		5				5				2				2205		
NXIEWQ	210_EXIT		1				1				1				0		
NXIEWQ	211_APOE_LOOP		5				6				2				3645		
NXIEWQ	211_EXIT		1				1				1				0		
NXIEWQ	212_APOE_TOTAL		11				2				2				14256		
NXIEWQ	212_EXIT		1				1				1				0		
NXIEWQ	2111_APOD_LOOP		26				10				2				2402816		
NXIEWQ	2111_EXIT		1				1				1				0		
NXIEWQ	2112_APOD_TOTAL		20				4				2				288000		
NXIEWQ	2112_EXIT		1				1				1				0		
NXIEWQ	220_NAF_TOTAL		13				4				2				15925		
NXIEWQ	220_EXIT		1				1				1				0		
NXIEWQ	300_WRAPUP		7				2				2				9072		
NXIEWQ	300_EXIT		1				1				1				0		
NXIEWQ	700_HEADERS		10				7				2				12960		
NXIEWQ	700_HEADERS_EXIT		1				1				1				0		
NXIEWQ	700_TRAILER		5				3				2				720		
NXIEWQ	700_TRAILER_EXIT		1				1				1				0		
NXIEWQ	700_NEW_PAGE		7				4				2				5488		
NXIEWQ	700_NEW_PAGE_EXIT		1				1				1				0		
NXIEWQ	700_COMPUTE		23				2				2				7394247		
NXIEWQ	700_COMPUTE_EXIT		1				1				1				0		
NXD0WQ	000_DRIVER		3				2				1				27		
NXD0WQ	000_STOP_RUN		1				1				1				0		
NXD0WQ	100_HSKP		1				1				1				0		
NXD0WQ	100_EXIT		1				1				1				0		
NXD0WQ	200_READ		5				3				1				1125		
NXD0WQ	200_EXIT		1				1				1				0		
NXD0WQ	300_WRAPUP		3				1				1				0		
NXD0WQ	300_EXIT		1				1				1				0		
NXD1WQ	000_DRIVER		4				2				2				16		
NXD1WQ	000_STOP_RUN		1				1				1				0		
NXD1WQ	100_ONHD		5				2				1				180		
NXD1WQ	100_EXIT		1				1				1				0		
NXD1WQ	110_READ		5				3				1				1125		
NXD1WQ	110_EXIT		1				1				1				0		
NXD1WQ	200_MVMT		5				2				1				180		
NXD1WQ	200_EXIT		1				1				1				0		
NXD1WQ	210_READ		5				3				1				1125		
NXD1WQ	210_EXIT		1				1				1				0		
NXD2WQ	000_DRIVER		7				3				2				252		
NXD2WQ	000_STOP_RUN		1				1				1				0		
NXD2WQ	100_TC_ONHAND		5				2				1				720		
NXD2WQ	100_EXIT		1				1				1				0		
NXD2WQ	110_READ_WRITE_LOOP		10				4				2				12960		
NXD2WQ	110_EXIT		1				1				1				0		
NXD2WQ	200_TC_MOVEMENT		5				2				1				720		
NXD2WQ	200_EXIT		1				1				1				0		
NXD2WQ	210_READ_WRITE_LOOP		10				4				2				12960		
NXD2WQ	210_EXIT		1				1				1				0		
NXD2WQ	300_COMT		5				2				1				720		
NXD2WQ	300_EXIT		1				1				1				0		
NXD2WQ	310_COMT_LOOP		10				4				2				12960		

TRAIS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts Baseline	October	Januaray	April	McCabe's CC Baseline	October	Januaray	April	Max Nest Baseline	October	Januaray	April	Information Flow Baseline	October	Januaray	April
NXD2WQ	310_EXIT		1				1				1				0		
NXD3WQ	000_DRIVER		3				2				2				12		
NXD3WQ	000_STOP_RUN		1				1				1				0		
NXD3WQ	100_TC_COMMERCIAL		5				2				1				180		
NXD3WQ	100_EXIT		1				1				1				0		
NXD3WQ	110_READ_WRITE_LOOP		6				3				1				1350		
NXD3WQ	110_EXIT		1				1				1				0		
NXD3WQ	200_TC_MOVEMENT		5				2				1				180		
NXD3WQ	200_EXIT		1				1				1				0		
NXD3WQ	210_READ_WRITE_LOOP		6				3				1				1350		
NXD3WQ	210_EXIT		1				1				1				0		
NXD4WQ	000_DRIVER		1				1				1				0		
NXD4WQ	000_STOP_RUN		1				1				1				0		
NXD4WQ	100_TC_MOVEMENT		5				2				1				180		
NXD4WQ	100_EXIT		1				1				1				0		
NXD4WQ	110_READ_WRITE_LOOP		6				3				1				1350		
NXD4WQ	110_EXIT		1				1				1				0		
NXD5WQ	000_DRIVER		1				1				1				0		
NXD5WQ	000_STOP_RUN		1				1				1				0		
NXD5WQ	100_SUM		5				2				1				180		
NXD5WQ	100_EXIT		1				1				1				0		
NXD5WQ	110_READ_WRITE_LOOP		6				3				1				1350		
NXD5WQ	110_EXIT		1				1				1				0		
NXD7WQ	000_DRIVER		3				2				1				27		
NXD7WQ	000_STOP_RUN		1				1				1				0		
NXD7WQ	100_HSKP		1				1				1				0		
NXD7WQ	100_EXIT		1				1				1				0		
NXD7WQ	200_READ		5				3				1				1125		
NXD7WQ	200_EXIT		1				1				1				0		
NXD7WQ	300_WRAPUP		3				1				1				0		
NXD7WQ	300_EXIT		1				1				1				0		
NXIFWQ	000_IF_DRIVER			6				3				2				384	
NXIFWQ	000_STOP_RUN			1				1				1				0	
NXIFWQ	100_HOUSEKEEPING			32				7				2				15235200	
NXIFWQ	100_EXIT			1				1				1				0	
NXIFWQ	110_SELECT_HISTORY_RECORDS			16				11				2				69696	
NXIFWQ	110_EXIT			1				1				1				0	
NXIFWQ	200_REPORT_BUILDER			7				6				2				12348	
NXIFWQ	200_EXIT			1				1				1				0	
NXIFWQ	210_CALC_DTL_WEIGHTS_SHIPMENTS			3				1				1				108	
NXIFWQ	210_EXIT			1				1				1				0	
NXIFWQ	220_DETAIL_PROCESS			11				1				1				65219	
NXIFWQ	220_EXIT			1				1				1				0	
NXIFWQ	230_TOTAL_PROCESS			9				2				1				14400	
NXIFWQ	230_EXIT			1				1				1				0	
NXIFWQ	300_WRAPUP			10				2				2				49000	
NXIFWQ	300_EXIT			1				1				1				0	
NXIFWQ	700_NEW_PAGE			7				4				2				2800	
NXIFWQ	700_NEW_PAGE_EXIT			1				1				1				0	
NXIFWQ	700_HEADERS			8				5				2				6272	
NXIFWQ	700_HEADERS_EXIT			1				1				1				0	
NXIFWQ	700_TRAILER			5				3				2				1125	
NXIFWQ	700_TRAILER_EXIT			1				1				1				0	
NXIFWQ	700_READ_SORTED_FILE_GFRC			2				2				1				18	
NXIFWQ	700_READ_SORTED_FILE_GFRC_EXIT			1				1				1				0	

UPDATE Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	Num of Stmts				McCabe's CC				Max Nesting				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
YG15WQ	1_CONTROL	16	16			6	6			2	2			135424	135424		
YG15WQ	1B_CONTROL_EXIT	1	1			1	1			1	1			0	0		
YG15WQ	1A_STARS_CALL	41	41			13	13			2	2			9446400	8865225		
YG15WQ	1A_EXIT	1	1			1	1			1	1			0	0		
YG15WQ	2_SET_STARS_ARGUMENTS	15	15			4	4			2	2			181500	181500		
YG15WQ	2A_LOAD_FILCODE	39	39			14	14			2	2			89856	89856		
YG15WQ	2A_EXIT	1	1			1	1			1	1			0	0		
YG15WQ	2A1_LOAD_TEST_FILCODE	39	39			14	14			2	2			78975	78975		
YG15WQ	2A1_EXIT	1	1			1	1			1	1			0	0		
YG15WQ	2B_LOAD_OPIDENT	24	24			8	8			2	2			46464	46464		
YG15WQ	2B_EXIT	1	1			1	1			1	1			0	0		
YG15WQ	2B1_LOAD_FILE_RELATED_OPIDENT	5	5			2	2			2	2			320	320		
YG15WQ	2B1_EXIT	1	1			1	1			1	1			0	0		
YG15WQ	2C_LOAD_ADSW	53	53			16	16			3	3			347733	347733		
YG15WQ	2C_EXIT	1	1			1	1			1	1			0	0		
YG15WQ	2D_LOAD_LOCKE	18	18			7	7			3	3			48672	48672		
YG15WQ	2D_EXIT	1	1			1	1			1	1			0	0		
YG15WQ	2E_LOAD_ALLL	48	48			16	16			2	2			470448	470448		
YG15WQ	2E_EXIT	1	1			1	1			1	1			0	0		
YG15WQ	2F_LOAD_KEYNAME	33	33			12	12			2	2			66825	66825		
YG15WQ	2F_EXIT	1	1			1	1			1	1			0	0		
YG15WQ	2G_LOAD_FILCODE	39	39			14	14			2	2			78975	78975		
YG15WQ	2G_EXIT	1	1			1	1			1	1			0	0		
YG15WQ	2G1_LOAD_TEST_FILCODE	39	39			14	14			2	2			78975	78975		
YG15WQ	2G1_EXIT	1	1			1	1			1	1			0	0		
YG15WQ	3_CHECK_REZULTS	87	87			51	51			3	3			43118592	43118592		
YG15WQ	3_CHECK_EXIT	1	1			1	1			1	1			0	0		
YG15WQ	4_DISPLAY_TROUBLE	14	14			3	3			3	3			4536	4536		
YG15WQ	4A_DISPLAY_ARGS	9	9			1	1			1	1			0	0		
YG15WQ	4A_EXIT	1	1			1	1			1	1			0	0		
YGABW	000_DRIVER	32	33			8	10			2	2			5120000	8449188		
YGABW	000_CLOSE_FILES	3	3			2	2			2	2			12	12		
YGABW	000_DRIVER_EXIT	1	1			1	1			1	1			0	0		
YGABW	100_ABORT_MANIFEST	56	55			10	10			2	2			99058400	91809520		
YGABW	100_EXIT	1	1			1	1			1	1			0	0		
YGABW	200_READ_WORK_FILE	19	19			11	11			3	3			182476	182476		
YGABW	200_EXIT	1	1			1	1			1	1			0	0		
YGABW	300_ABORT_DETAIL	29	30			5	6			2	2			4827456	6768750		
YGABW	300_ABORT_DTL_EXIT	1	1			1	1			1	1			0	0		
YGABW	400_ABORT_PALLET	22	22			3	3			2	2			2914912	2914912		
YGABW	400_ABORT_PLT_EXIT	1	1			1	1			1	1			0	0		
YGABW	500_ADD_NEW_HOST_RECORD	12	12			3	3			3	3			23232	23232		
YGABW	500_EXIT	1	1			1	1			1	1			0	0		
YGABW	510_REPLACE_OLD_HOST	16	16			3	3			3	3			156816	156816		
YGABW	510_EXIT	1	1			1	1			1	1			0	0		
YGABW	600_READ_WRITE	16	16			7	7			2	2			25600	25600		
YGABW	600_READ_WRITE_EXIT	1	1			1	1			1	1			0	0		
YGABW	700_TZZ	16	16			9	9			3	3			1296	1296		
YGABW	700_TZZ_EXIT	1	1			1	1			1	1			0	0		
YGABW	800_RZLT_CODE_CHECK	8	8			2	2			2	2			2592	2592		
YGABW	800_EXIT	1	1			1	1			1	1			0	0		
YGABW	900_SEND_MSG_TO_CONSOLE	4	4			1	1			1	1			16	16		
YGABW	900_EXIT	1	1			1	1			1	1			0	0		
YGABW	1000_SEND_MSG	11	11			4	4			3	3			4851	4851		
YGABW	1000_EXIT	1	1			1	1			1	1			0	0		
YGABW	1100_BUILD_STATUS_RECORD	17	10			2	1			2	1			1332800	121000		
YGABW	1100_EXIT	1	1			1	1			1	1			0	0		
YGABW	1200_DUPE_CONTROL	11	11			4	4			4	4			27500	27500		
YGABW	1200_EXIT	1	1			1	1			1	1			0	0		
YGABW	1300_NSN_PROCESS	8	8			1	1			1	1			3528	3528		
YGABW	1300_EXIT	1	1			1	1			1	1			0	0		
YGABW	1400_ADD_DETAIL	7	7			1	1			1	1			5488	5488		
YGABW	1400_EXIT	1	1			1	1			1	1			0	0		
YGABW	1500_GET_SYS_ID_RECORD	19	19			4	4			3	3			57475	57475		

B-64

UPDATE Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	Num of Stmts				McCabe's CC				Max Nesting				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
YGABW	1500_EXIT	1	1			1	1			1	1			0	0		
YGALWQ	000_DRIVER	69	69		69	21	21		21	3	3		3	171163125	178854900		178854900
YGALWQ	000_CONTINUE	5	21		21	2	4		4	2	3		3	1620	979776		979776
YGALWQ	000_CLOSE_FILES	10	10		10	6	6		6	3	3		3	25000	25000		25000
YGALWQ	000_DRIVER_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
YGALWQ	100_LIFT_U	73	78		78	16	16		16	2	2		2	177652800	242437182		242437182
YGALWQ	100_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
YGALWQ	200_MAIN_U	12	12		12	10	10		10	2	2		2	13068	13068		13068
YGALWQ	200_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
YGALWQ	300_BUILD_405	13	13		13	3	3		3	2	2		2	67392	67392		67392
YGALWQ	300_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
YGALWQ	400_LIFT_DETAIL	28	30		30	3	3		3	2	2		2	5976432	7620480		7620480
YGALWQ	400_LIFT_DTL_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
YGALWQ	410_TCN_CHECK	25	25		25	8	8		8	2	2		2	202500	202500		202500
YGALWQ	410_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
YGALWQ	500_LIFT_PALLET	18	18		18	3	3		3	2	2		2	793800	793800		793800
YGALWQ	500_LIFT_PLT_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
YGALWQ	600_INITIALIZE_RCOMC	12	12		12	1	1		1	1	1		1	129792	129792		129792
YGALWQ	600_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
YGALWQ	700_SEND_405	18	18		18	5	5		5	3	3		3	209952	209952		209952
YGALWQ	700_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
YGALWQ	800_READ_WRITE	36	36		36	12	12		12	3	3		3	1192464	1192464		1192464
YGALWQ	800_READ_WRITE_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
YGALWQ	810_EDIT_MINI_DIC	5	5		5	4	4		4	2	2		2	500	500		500
YGALWQ	810_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
YGALWQ	820_BALANCE_CHECK_DRIVER	14	14		14	7	7		7	2	2		2	12600	12600		12600
YGALWQ	820_BALANCE_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
YGALWQ	830_PLT_INPUT	32	32		32	3	3		3	2	2		2	1059968	1059968		1059968
YGALWQ	830_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
YGALWQ	840_LOOSE_INPUT	36	36		36	4	4		4	2	2		2	2663424	2663424		2663424
YGALWQ	840_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
YGALWQ	850_TCN_INPUT	39	39		39	6	6		6	3	3		3	2135484	2135484		2135484
YGALWQ	850_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
YGALWQ	860_PLT_BALANCE_CHECK	30	35		35	7	9		9	3	3		3	192000	283500		283500
YGALWQ	860_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
YGALWQ	870_MANFST_BALANCE_CHECK	28	32		32	6	6		6	3	3		3	548800	720000		720000
YGALWQ	870_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
YGALWQ	880_CHECK_TAA_REC	8	8		8	5	5		5	2	2		2	1152	1152		1152
YGALWQ	880_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
YGALWQ	890_TZZ	14	14		14	9	9		9	3	3		3	1400	1400		1400
YGALWQ	890_TZZ_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
YGALWQ	1000_RZLT_CODE_CHECK	8	8		8	2	2		2	2	2		2	3200	4608		4608
YGALWQ	1000_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
YGALWQ	1100_WEIGHT_CONVERT	14	14		14	11	11		11	2	2		2	1400	1400		1400
YGALWQ	1100_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
YGALWQ	1100A_WEIGHT_CONVERT	13	13		13	11	11		11	2	2		2	468	468		468
YGALWQ	1100A_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
YGALWQ	1110_CUBE_CONVERT	35	36		36	21	22		22	2	2		2	126000	186624		186624
YGALWQ	1110_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
YGALWQ	1200_SEND_MSG_TO_CONSOLE	4	4		4	1	1		1	1	1		1	16	16		16
YGALWQ	1200_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
YGALWQ	1400_SEND_MSG	11	11		11	4	4		4	3	3		3	4851	4851		4851
YGALWQ	1400_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
YGALWQ	1500_DELETE_ASIF_MANIFEST	18	39		39	2	7		7	2	4		4	778752	11372400		11372400
YGALWQ	1500_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
YGALWQ	1600_ADD_TRAIS_RECORD	9	11		11	3	4		4	2	4		4	3969	33275		33275
YGALWQ	1600_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
YGALWQ	1700_DUPE_CONTROL	11	3		3	4	2		2	4	2		2	27500	432		432
YGALWQ	1700_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
YGALWQ	1800_SET_LIFT_STATUS	3	18		18	2	4		4	2	3		3	432	54450		54450
YGALWQ	1800_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
YGALWQ	1900_GET_SYS_ID_RECORD	18	10		10	4	1		1	3	1		1	54450	100000		100000
YGALWQ	1900_EXIT	1	1		1	1	1		1	1	1		1	0	0		0
YGBRW	000_CONTROL	28				10				3				274428			

UPDATE Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	Num of Stmts				McCabe's CC				Max Nesting				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
YGBRW	000_EXIT	1				1				1				0			
YGBRW	100_BUILD_DETAIL_RECORD	20				2				2				2857680			
YGBRW	100_EXIT	1				1				1				0			
YGBRW	200_BUILD_PALLET_RECORD	16				3				2				1382976			
YGBRW	200_EXIT	1				1				1				0			
YGCDW	1_START_PROCESSING	80				13				2				170995520			
YGCDW	1_CONT	9				2				2				35721			
YGCDW	1_EXIT_PROGRAM	1				1				1				0			
YGCDW	2_CALL_UC	25				6				2				874225			
YGCDW	2_EXIT	1				1				1				0			
YGCDW	3_CALL_15	28				9				4				818748			
YGCDW	3_EXIT	1				1				1				0			
YGCDW	3A_RZLT_CODE_CHECK	9				2				2				6561			
YGCDW	3A_EXIT	1				1				1				0			
YGCDW	4_U_DETAILS	26				7				5				585000			
YGCDW	4_EXIT	1				1				1				0			
YGCDW	5_ADD_DB_RECORD	42				6				3				27284712			
YGCDW	5_EXIT	1				1				1				0			
YGCDW	5A_SEARCH_MINI_STATUS	5				3				3				500			
YGCDW	5A_EXIT	1				1				1				0			
YGCDW	6_DELETE_DB_RECORD	13				3				2				105300			
YGCDW	6_EXIT	1				1				1				0			
YGCDW	6A_SEARCH_HOST_STATUS	5				3				3				500			
YGCDW	6A_EXIT	1				1				1				0			
YGCDW	7_COMPARE_RECORD	82				15				3				152560672			
YGCDW	7_EXIT	1				1				1				0			
YGCDW	8_DISPLAY_COUNTERS	52				6				1				1684800			
YGCDW	8_EXIT	1				1				1				0			
YGCDW	8A_MOVE	1				1				1				9			
YGCDW	8A_EXIT	1				1				1				0			
YGCDW	8B_MOVE	5				2				1				2000			
YGCDW	8B_EXIT	1				1				1				0			
YGCDW	8B1_MOVE	1				1				1				49			
YGCDW	8B1_EXIT	1				1				1				0			
YGCDW	9_SKIP_COMPARE	9				1				1				18225			
YGCDW	9_EXIT	1				1				1				0			
YGCDW	10_GET_SYSTEM_ID_REC	8				2				2				2048			
YGCDW	10_EXIT	1				1				1				0			
YGCDW	15_CHECK_TRANS	13				4				4				2925			
YGCDW	15_EXIT	1				1				1				0			
YGCDW	16_CHECK_TIME_PASSED	19				5				4				24624			
YGCDW	16_EXIT	1				1				1				0			
YGCDW	22_DISPLAY_ARGS	9				1				1				0			
YGCDW	22_EXIT	1				1				1				0			
YGCDW	23_DISPLAY_RECS	4				2				2				400			
YGCDW	23_EXIT	1				1				1				0			
YGCDW	24_ADD_TO_MOVEMENT	25				3				2				2924100			
YGCDW	24_CONTINUE	8				3				2				3528			
YGCDW	24_EXIT	1				1				1				0			
YGCPW	1_START_PROCESSING	31				9				2				4715100			
YGCPW	1_EXIT_PROGRAM	1				1				1				0			
YGCPW	2_CALL_UC	25				7				2				874225			
YGCPW	2_EXIT	1				1				1				0			
YGCPW	3_CALL_15	7				3				2				1372			
YGCPW	3A_CALL_15_AGAIN	19				7				4				205504			
YGCPW	3_EXIT	1				1				1				0			
YGCPW	3A_RZLT_CODE_CHECK	13				2				2				8788			
YGCPW	4_U_PALLETS	27				8				5				995328			
YGCPW	4_EXIT	1				1				1				0			
YGCPW	5_ADD_DB_RECORD	29				4				2				10755549			
YGCPW	5_EXIT	1				1				1				0			
YGCPW	5A_SEARCH_MINI_STATUS	5				3				3				500			
YGCPW	6_DELETE_DB_RECORD	12				3				2				76800			
YGCPW	6_EXIT	1				1				1				0			

UPDATE Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	Num of Stmts Baseline	October	Januaray	April	McCabe's CC Baseline	October	Januaray	April	Max Nesting Baseline	October	Januaray	April	Information Flow Baseline	October	Januaray	April
YGCPW	6A_SEARCH_HOST_STATUS	5				3				3				500			
YGCPW	7_COMPARE_RECORD	42				8				2				13502538			
YGCPW	8_DISPLAY_COUNTERS	46				6				1				1035000			
YGCPW	8A_MOVE	1				1				1				9			
YGCPW	8B_MOVE	5				2				1				2000			
YGCPW	8B1_MOVE	1				1				1				49			
YGCPW	9_SKIP_COMPARE	9				1				1				18225			
YGCPW	15_CHECK_TRANS	13				4				4				2925			
YGCPW	15_CHECK_TRANS_EXIT	1				1				1				0			
YGCPW	16_CHECK_TIME_PASSED	19				5				4				24624			
YGCPW	16_CHECK_EXIT	1				1				1				0			
YGCPW	17_DISPLAY_RECS	4				2				2				144			
YGCPW	17_EXIT	1				1				1				0			
YGCPW	18_GET_SYSTEM_ID_REC	10				2				2				10240			
YGCPW	18_EXIT	1				1				1				0			
YGCTW	1_BEGIN	22				4				4				71478			
YGCTW	1_EXIT	1				1				1				0			
YGCTW	2_ADD	73				21				3				9513433			
YGCTW	2_EXIT	1				1				1				0			
YGCTW	3_PRINT	9				1				1				1296			
YGCTW	3_PRINT_TRANS_CNT	43				2				2				2107			
YGCTW	3_EXIT	1				1				1				0			
YGCTW	5_SEND_MESSAGE	28				5				3				444528			
YGCTW	5_EXIT	1				1				1				0			
YGCTW	6_CHANGE_SYSTEM_STATUS	18				6				5				71442			
YGCTW	6_EXIT	1				1				1				0			
YGCTW	7_SET_SYSTEM_STATUS	15				3				3				18375			
YGCTW	7_EXIT	1				1				1				0			
YGCTW	8_CALL_15	6				2				2				1176			
YGCTW	8_EXIT	1				1				1				0			
YGCTW	9_RZLT_CHECK	8				2				2				800			
YGCTW	9_EXIT	1				1				1				0			
YGCTW	10_READ_SYS_ID_FILE	15				5				3				73500			
YGCTW	10_EXIT	1				1				1				0			
YGCTW	11_FIND_PORT	11				3				3				2816			
YGCTW	11_EXIT	1				1				1				0			
YGCTW	12_MOVE_DATA	23				2				2				298908			
YGCTW	12_EXIT	1				1				1				0			
YGCTW	14_SET_CHANGE_DATE	4				1				1				4096			
YGCTW	14_EXIT	1				1				1				0			
YGCTW	00000_BEGIN			28	39			5	6			3	5			252700	351975
YGCTW	00000_EXIT			1	1			1	1			0	1			0	0
YGCTW	10000_END_OF_DAY_PROCESS			14	14			2	2			1	2			89600	89600
YGCTW	10000_EXIT			1	1			1	1			0	1			0	0
YGCTW	20000_READ_SYS_ID_FILE			16	16			5	5			2	3			129600	129600
YGCTW	20000_EXIT			1	1			1	1			0	1			0	0
YGCTW	21000_LOAD_TRANS_TABLE			5	5			2	2			0	1			6480	6480
YGCTW	21000_EXIT			1	1			1	1			0	1			0	0
YGCTW	21100_LOAD_SYSID_DATA			1	1			1	1			0	1			9	9
YGCTW	21100_EXIT			1	1			1	1			0	1			0	0
YGCTW	30000_FIND_PORT			15	15			3	3			2	3			10935	10935
YGCTW	30000_EXIT			1	1			1	1			0	1			0	0
YGCTW	40000_ADD			76	68			22	18			2	2			19305216	7953552
YGCTW	40000_EXIT			1	1			1	1			0	1			0	0
YGCTW	41000_SEND_MESSAGE			28	28			5	5			2	3			444528	444528
YGCTW	41000_EXIT			1	1			1	1			0	1			0	0
YGCTW	42000_CHANGE_SYSTEM_STATUS			19	19			6	6			4	5			75411	75411
YGCTW	42000_EXIT			1	1			1	1			0	1			0	0
YGCTW	42100_SET_SYSTEM_STATUS			15	15			3	3			2	3			18375	18375
YGCTW	42100_EXIT			1	1			1	1			0	1			0	0
YGCTW	42110_SET_CHANGE_DATE			4	4			1	1			0	1			4096	4096
YGCTW	42110_EXIT			1	1			1	1			0	1			0	0
YGCTW	42120_CALL_15			5	5			2	2			1	2			980	980
YGCTW	42120_EXIT			1	1			1	1			0	1			0	0

UPDATE Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	Num of Stmts				McCabe's CC				Max Nesting				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
YGCTW	50000_STORE_TO_SYS_ID			8	8			3	3			0	1			7200	7200
YGCTW	50000_EXIT			1	1			1	1			0	1			0	0
YGCTW	51000_READ_SYS_ID_FILE_AGAIN			14	14			8	8			2	3			50400	50400
YGCTW	51000_EXIT			1	1			1	1			0	1			0	0
YGCTW	51100_SEARCH_TRANS_TABLE			3	3			2	2			1	2			192	192
YGCTW	51100_EXIT			1	1			1	1			0	1			0	0
YGCTW	51110_STORE_DATA			8	8			3	3			1	2			7200	7200
YGCTW	51110_EXIT			1	1			1	1			0	1			0	0
YGCTW	51111_STORE_TRANS_INFO			1	1			1	1			0	1			16	16
YGCTW	51111_EXIT			1	1			1	1			0	1			0	0
YGCTW	51200_REPLACE_RECORD			9	9			2	2			1	2			3600	3600
YGCTW	51200_EXIT			1	1			1	1			0	1			0	0
YGCTW	60000_PROCESS_TRANS_RPT			10	10			4	4			0	1			39690	39690
YGCTW	60000_EXIT			1	1			1	1			0	1			0	0
YGCTW	61000_BUILD_AND_SEND			29	29			7	7			2	3			1841616	1841616
YGCTW	61000_EXIT			1	1			1	1			0	1			0	0
YGCTW	61100_SET_HEADERS			4	11			2	2			1	2			400	107811
YGCTW	61100_EXIT			0	0			1	0			0	0			0	0
YGCTW	61200_BUILD_DRIVER			5	5			2	2			0	1			8820	8820
YGCTW	61200_EXIT			1	1			1	1			0	1			0	0
YGCTW	61210_ACCESS_2ND_DEMENSION			1	1			1	1			0	1			16	16
YGCTW	61210_EXIT			1	1			1	1			0	1			0	0
YGCTW	61300_SEND_TRANS_RPT			22	22			3	3			2	3			130438	130438
YGCTW	61300_EXIT			1	1			1	1			0	1			0	0
YGCTW	61400_SEARCH_PORT_TABLE			6	6			3	3			2	3			384	384
YGCTW	61400_EXIT			1	1			1	1			0	1			0	0
YGCTW	70000_RZLT_CHECK			9	9			2	2			1	2			3600	3600
YGCTW	70000_EXIT			1	1			1	1			0	1			0	0
YGCTW	80000_FALL_THRU			1	1			1	1			0	1			0	0
YGCTW	80000_EXIT			1	1			1	1			0	1			0	0
YGDAW	100_BEGIN_PROCESSING	49				13				3				6853924			
YGDAW	100_EOO	6				3				3				2646			
YGDAW	100_EXIT_PROGRAM	1				1				1				0			
YGDAW	999_BAD_RESULT	8				2				2				2592			
YGDAW	999_EXIT	1				1				1				0			
YGDCW	100_BEGIN_PROCESSING	48				13				3				5947392			
YGDCW	100_EOO	6				3				3				2646			
YGDCW	100_EXIT_PROGRAM	1				1				1				0			
YGDCW	999_BAD_RESULT	7				2				2				1372			
YGDCW	999_EXIT	1				1				1				0			
YGDDW	100_BEGIN_PROCESSING	27				6				4				326700			
YGDDW	100_EOO	6				3				3				2646			
YGDDW	100_EXIT_PROGRAM	1				1				1				0			
YGDDW	200_ADD_TO_DK	26				4				4				3521024			
YGDDW	200_ADD_TO_TRAIS	10				3				2				4410			
YGDDW	200_EXIT	1				1				1				0			
YGDDW	999_BAD_RZLT	8				2				2				1568			
YGDDW	999_EXIT	1				1				1				0			
YGDMW	000_DRIVER	34	61			4	12			2	4			5440000	56217600		
YGDMW	000_DRIVER_EXIT		1				1				0				0		
YGDMW	100_ADD_TRAIS_RECORD	9				3				2				5184			
YGDMW	100_EXIT	1				1				1				0			
YGDMW	110_BAD_RZLT_CODE	7				2				2				1008			
YGDMW	110_EXIT	1				1				1				0			
YGDMW	120_EXIT_PROGRAM	1				1				1				0			
YGDMW	200_BUILD_STATUS_RECORD	9				2				2				35721			
YGDMW	200_EXIT	1				1				1				0			
YGDRW	1_BEGIN_PROCESSING	6		6		1		1		1		1		1350		1350	
YGDRW	2_PROCESS	45		49		11		11		3		3		12545280		17640000	
YGDRW	2_BY_PASSED_SPAWN_JOBS	93		93		16		16		3		3		223432500		223432500	
YGDRW	2_RESULT_CHECK	4		4		3		3		2		2		256		256	
YGDRW	3_WRAP_UP	4		2		1		1		1		1		324		18	
YGDRW	3_DISPLAY	10		10		6		6		3		3		9000		9000	
YGDRW	1_EXIT	1		1		1		1		1		1		0		0	

UPDATE Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	Num of Stmts				McCabe's CC				Max Nesting				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
YGDRW	4_TIME_STAMP_START	4		4		2		2		2		2		1156		1156	
YGDRW	4_TIME_EXIT	1		1		1		1		1		1		0		0	
YGDRW	5_TIME_STAMP_STOP	4		4		2		2		2		2		1156		1156	
YGDRW	5_TIME_EXIT	1		1		1		1		1		1		0		0	
YGDRW	6_SPAWN_DGDH	35		35		7		7		4		4		3320240		3320240	
YGDRW	6_SPAWN_DGDH_EXIT	1		1		1		1		1		1		0		0	
YGDRW	7_SEND_519	10		10		3		3		3		3		12250		12250	
YGDRW	7_519_EXIT	1		1		1		1		1		1		0		0	
YGDRW	7_SEND_409	12		12		7		7		3		3		7500		7500	
YGDRW	7_409_EXIT	1		1		1		1		1		1		0		0	
YGDRW	7_SEND_TIPS_PPAL	19		19		3		3		2		2		1779084		1779084	
YGDRW	7_PPAL_EXIT	1		1		1		1		1		1		0		0	
YGDRW	8_REPLACE_CONTROL_RECORD	8		8		2		2		2		2		18432		18432	
YGDRW	8_REPLACE_EXIT	1		1		1		1		1		1		0		0	
YGDRW	8A_GET_CONTROL_RECORD	8		8		2		2		2		2		24200		24200	
YGDRW	8A_GET_EXIT	1		1		1		1		1		1		0		0	
YGDRW	9_BAD_RZLT_CODE	7		7		2		2		2		2		2268		2268	
YGDRW	9_EXIT	1		1		1		1		1		1		0		0	
YGDRW	11_SAVE_PURGE_CHECK	13		13		4		4		3		3		56628		56628	
YGDRW	11_EXIT	1		1		1		1		1		1		0		0	
YGDRW	15_SEND_MSG_TO_CONSOLE	6		6		1		1		1		1		0		0	
YGDRW	15_EXIT	1		1		1		1		1		1		0		0	
YGDRW	17_SPAWN_TCOM	16		16		4		4		2		2		129600		129600	
YGDRW	17_EXIT	1		1		1		1		1		1		0		0	
YGDRW	18_DISPLAY_TO_CONSOL	3		3		1		1		1		1		0		0	
YGDRW	18_EXIT	1		1		1		1		1		1		0		0	
YGDRW	19_DGDH_NOT_SPAWNED	6		6		1		1		1		1		864		864	
YGDRW	19_EXIT	1		1		1		1		1		1		0		0	
YGDRW	20_DGDH_SPAWNED	15		14		1		1		1		1		6000		5600	
YGDRW	20_EXIT	1		1		1		1		1		1		0		0	
YGDRW	22_DGDH_DISPLAYS	3		3		1		1		1		1		0		0	
YGDRW	22_EXIT	1		1		1		1		1		1		0		0	
YGDRW	23_DO_SAVE	19		19		2		2		2		2		186219		186219	
YGDRW	23_TAKE_SAVE	11		11		1		1		1		1		11264		11264	
YGDRW	23_EXIT	1		1		1		1		1		1		0		0	
YGDRW	25_CONTROL_RECORD	13		13		3		3		3		3		67392		67392	
YGDRW	25_EXIT	1		1		1		1		1		1		0		0	
YGDRW	26_STARS_EOO	2		2		1		1		1		1		200		200	
YGDRW	26_EXIT	1		1		1		1		1		1		0		0	
YGFBWQ	1_BEGIN_PROCESSING	81				28				4				86601636			
YGFBWQ	1_EXIT_PROGRAM	1				1				1				0			
YGFBWQ	2_SEND_TO_MACA	28				5				3				1097712			
YGFBWQ	2_EXIT	1				1				1				0			
YGLFWQ	000_DRIVER	51	56			17	19			3	3			86455404	118065024		
YGLFWQ	000_CONTINUE	21	20			5	4			3	3			734349	699380		
YGLFWQ	000_CLOSE_FILES	10	10			6	6			3	3			16000	16000		
YGLFWQ	000_DRIVER_EXIT	1	1			1	1			1	1			0	0		
YGLFWQ	100_LIFT_U	68	66			13	12			2	2			157313988	137618976		
YGLFWQ	100_EXIT	1	1			1	1			1	1			0	0		
YGLFWQ	200_MAIN_U	15	15			9	9			2	2			65340	65340		
YGLFWQ	200_EXIT	1	1			1	1			1	1			0	0		
YGLFWQ	210_TRAILER_RECORDS	6	6			5	5			3	3			600	600		
YGLFWQ	210_EXIT	1	1			1	1			1	1			0	0		
YGLFWQ	210A_STARS_TRAILERS	15	15			2	2			2	2			121500	121500		
YGLFWQ	210A_EXIT	1	1			1	1			1	1			0	0		
YGLFWQ	300_BUILD_405	13	13			3	3			2	2			67392	67392		
YGLFWQ	300_EXIT	1	1			1	1			1	1			0	0		
YGLFWQ	400_LIFT_DETAIL	42	42			5	5			3	3			23877672	23877672		
YGLFWQ	400_LIFT_DTL_EXIT	1	1			1	1			1	1			0	0		
YGLFWQ	410_TCN_CHECK	25	25			8	8			2	2			202500	202500		
YGLFWQ	410_EXIT	1	1			1	1			1	1			0	0		
YGLFWQ	500_LIFT_PALLET	38	38			6	6			3	3			14093478	14093478		
YGLFWQ	500_LIFT_PLT_EXIT	1	1			1	1			1	1			0	0		
YGLFWQ	600_INITIALIZE_RCOMC	12	12			1	1			1	1			129792	129792		

UPDATE Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	Num of Stmts				McCabe's CC				Max Nesting				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
YGLFWQ	600_EXIT	1	1			1	1			1	1			0	0		
YGLFWQ	700_SEND_405	18	18			5	5			3	3			209952	209952		
YGLFWQ	700_EXIT	1	1			1	1			1	1			0	0		
YGLFWQ	800_READ_WRITE	34	34			11	11			3	3			971074	971074		
YGLFWQ	800_READ_WRITE_EXIT	1	1			1	1			1	1			0	0		
YGLFWQ	810_EDIT_MINI_DIC	5	5			4	4			2	2			500	500		
YGLFWQ	810_EXIT	1	1			1	1			1	1			0	0		
YGLFWQ	820_BALANCE_CHECK_DRIVER	15	15			7	7			2	2			13500	13500		
YGLFWQ	820_BALANCE_EXIT	1	1			1	1			1	1			0	0		
YGLFWQ	830_PLT_INPUT	18	18			3	3			2	2			490050	490050		
YGLFWQ	830_EXIT	1	1			1	1			1	1			0	0		
YGLFWQ	840_LOOSE_INPUT	22	22			4	4			2	2			862488	862488		
YGLFWQ	840_EXIT	1	1			1	1			1	1			0	0		
YGLFWQ	850_TCN_INPUT	32	32			6	6			3	3			1411200	1411200		
YGLFWQ	850_EXIT	1	1			1	1			1	1			0	0		
YGLFWQ	860_PLT_BALANCE_CHECK	26	33			6	9			3	3			109850	211200		
YGLFWQ	860_EXIT	1	1			1	1			1	1			0	0		
YGLFWQ	870_MANFST_BALANCE_CHECK	24	30			5	6			2	3			345600	588000		
YGLFWQ	870_EXIT	1	1			1	1			1	1			0	0		
YGLFWQ	880_CHECK_TAA_REC	11	11			5	5			2	2			1584	1584		
YGLFWQ	880_EXIT	1	1			1	1			1	1			0	0		
YGLFWQ	890_TZZ	14	14			9	9			3	3			1400	1400		
YGLFWQ	890_TZZ_EXIT	1	1			1	1			1	1			0	0		
YGLFWQ	1000_RZLT_CODE_CHECK	8	8			2	2			2	2			5408	5408		
YGLFWQ	1000_EXIT	1	1			1	1			1	1			0	0		
YGLFWQ	1100_WEIGHT_CONVERT	14	14			11	11			2	2			1400	1400		
YGLFWQ	1100_EXIT	1	1			1	1			1	1			0	0		
YGLFWQ	1100A_WEIGHT_CONVERT	13	13			11	11			2	2			468	468		
YGLFWQ	1100A_EXIT	1	1			1	1			1	1			0	0		
YGLFWQ	1110_CUBE_CONVERT	34	36			21	22			2	2			122400	186624		
YGLFWQ	1110_EXIT	1	1			1	1			1	1			0	0		
YGLFWQ	1200_SEND_MSG_TO_CONSOLE	4	4			1	1			1	1			16	16		
YGLFWQ	1200_EXIT	1	1			1	1			1	1			0	0		
YGLFWQ	1400_SEND_MSG	11	11			4	4			3	3			4851	4851		
YGLFWQ	1400_EXIT	1	1			1	1			1	1			0	0		
YGLFWQ	1500_BUILD_STATUS_RECORD	12	9			2	1			2	1			164268	72900		
YGLFWQ	1500_EXIT	1	1			1	1			1	1			0	0		
YGLFWQ	1600_DTL_TAC	5	5			2	2			2	2			180	180		
YGLFWQ	1600_EXIT	1	1			1	1			1	1			0	0		
YGLFWQ	1700_CALL_YGTFWQ	8	8			1	1			1	1			31752	31752		
YGLFWQ	1700_EXIT	1	1			1	1			1	1			0	0		
YGLFWQ	1800_DUPE_CONTROL	11	11			4	4			4	4			27500	27500		
YGLFWQ	1800_EXIT	1	1			1	1			1	1			0	0		
YGLFWQ	1900_SET_LIFT_STATUS	3	3			2	2			2	2			432	432		
YGLFWQ	1900_EXIT	1	1			1	1			1	1			0	0		
YGLFWQ	2000_GET_SYS_ID_RECORD	18	18			4	4			3	3			54450	54450		
YGLFWQ	2000_EXIT	1	1			1	1			1	1			0	0		
YGOBW	000_DRIVER	156	156			83	83			2	2			2.752E+09	2.752E+09		
YGOBW	000_A_SEND_REPORT	34	32			11	11			2	2			705024	663552		
YGOBW	000_EXIT	1	1			1	1			1	1			0	0		
YGOBW	020_REPORT_DRIVER	17	17			8	8			2	2			20825	20825		
YGOBW	020_EXIT	1	1			1	1			1	1			0	0		
YGOBW	021_PLT_INPUT	28	28			5	5			3	3			2274300	2274300		
YGOBW	021_EXIT	1	1			1	1			1	1			0	0		
YGOBW	022_LOOSE_INPUT	32	32			6	6			3	3			4147200	4147200		
YGOBW	022_EXIT	1	1			1	1			1	1			0	0		
YGOBW	023_TCN_INPUT	46	46			8	8			3	3			5994766	5994766		
YGOBW	023_EXIT	1	1			1	1			1	1			0	0		
YGOBW	030_PLT_BALANCE_CHECK	31	36			9	12			3	3			642816	1040400		
YGOBW	030_EXIT	1	1			1	1			1	1			0	0		
YGOBW	040_MANFST_BALANCE_CHECK	23	23			8	8			3	3			314847	314847		
YGOBW	040_EXIT	1	1			1	1			1	1			0	0		
YGOBW	050_GET_INPUT	3	3			2	2			1	1			108	108		
YGOBW	050_EXIT	1	1			1	1			1	1			0	0		

UPDATE Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	Num of Stmts				McCabe's CC				Max Nesting				Information Flow			
		Baseline	October	January	April	Baseline	October	January	April	Baseline	October	January	April	Baseline	October	January	April
YGOBW	060_WRITE_DRIVER	8	8			3	3			2	2			1152	1152		
YGOBW	060_EXIT	1	1			1	1			1	1			0	0		
YGOBW	070_WRITE_PLT_RECORD	8	8			5	5			1	1			3200	3200		
YGOBW	070_EXIT	1	1			1	1			1	1			0	0		
YGOBW	080_WRITE_DETAILS	9	9			4	4			2	2			7056	7056		
YGOBW	080_EXIT	1	1			1	1			1	1			0	0		
YGOBW	100_WEIGHT_CONVERT	27	27			11	14			2	2			314928	314928		
YGOBW	100_EXIT	1	1			1	1			1	1			0	0		
YGOBW	100A_WEIGHT_CONVERT	23	23			11	12			2	2			100188	100188		
YGOBW	100A_EXIT	1	1			1	1			1	1			0	0		
YGOBW	110_CUBE_CONVERT	35	35			21	22			2	2			343035	343035		
YGOBW	110_CONVERT_EXIT	1	1			1	1			1	1			0	0		
YGOBW	110_EDIT_TAA	16	16			7	7			2	2			9216	9216		
YGOBW	110_EXIT	1	1			1	1			1	1			0	0		
YGOBW	120_MILSTAMP_ERROR	9	9			2	2			2	2			8100	8100		
YGOBW	120_EXIT	1	1			1	1			1	1			0	0		
YGOBW	130_GET_SYS_ID_RECORD	18	18			4	4			3	3			54450	54450		
YGOBW	130_EXIT	1	1			1	1			1	1			0	0		
YGOBW	131_CHECK_4_PALLETIZED	9	9			3	3			2	2			20736	20736		
YGOBW	131_EXIT	1	1			1	1			1	1			0	0		
YGORW	000_L2_DRIVER	23	23			9	9			2	2			100188	100188		
YGORW	000_EXIT_PROGRAM	1	1			1	1			1	1			0	0		
YGORW	100_SLEW_TRANSLATOR_HSKP	13	13			3	3			2	2			1872	1872		
YGORW	100_EXIT	1	1			1	1			1	1			0	0		
YGORW	200_SLEW_TRANSLATOR_DRIVER	5	5			3	3			2	2			180	180		
YGORW	200_EXIT	1	1			1	1			1	1			0	0		
YGORW	210_READ_REPORT_FILE	8	8			3	3			2	2			800	800		
YGORW	210_EXIT	1	1			1	1			1	1			0	0		
YGORW	220_TRANSLATE_AND_WRITE	50	50			11	11			4	4			583200	583200		
YGORW	220_EXIT	1	1			1	1			1	1			0	0		
YGORW	221_SPACE_LINE	6	6			2	2			1	1			3456	3456		
YGORW	221_EXIT	1	1			1	1			1	1			0	0		
YGORW	222_REPORT_DATA	5	5			3	3			2	2			2420	2420		
YGORW	222_EXIT	1	1			1	1			1	1			0	0		
YGORW	300_SLEW_TRANSLATOR_WRAPUP	2	2			1	1			1	1			0	0		
YGORW	300_EXIT	1	1			1	1			1	1			0	0		
YGORW	400_RPT_TRANSMITTER_HSKP	19	19			1	1			1	1			190000	190000		
YGORW	400_EXIT	1	1			1	1			1	1			0	0		
YGORW	500_RPT_TRANSMITTER_DRIVER	10	10			8	8			2	2			9000	9000		
YGORW	500_EXIT	1	1			1	1			1	1			0	0		
YGORW	510_MINIS_SEND_DRIVER	11	11			8	8			2	2			6875	6875		
YGORW	510_EXIT	1	1			1	1			1	1			0	0		
YGORW	511_FIRST_READ	10	10			2	2			1	1			5760	5760		
YGORW	511_EXIT	1	1			1	1			1	1			0	0		
YGORW	512_LOAD_MINI_PRT_HDR	16	16			2	2			2	2			36864	36864		
YGORW	512_EXIT	1	1			1	1			1	1			0	0		
YGORW	513_LOAD_REPORT_DATA	20	20			9	9			2	2			141120	141120		
YGORW	513_EXIT	1	1			1	1			1	1			0	0		
YGORW	514_MESSAGE_CONTROL	16	16			12	12			2	2			9216	9216		
YGORW	514_EXIT	1	1			1	1			1	1			0	0		
YGORW	515_FORMAT_CALL_RBTCHO	33	32			7	7			2	2			1427712	1384448		
YGORW	515_EXIT	1	1			1	1			1	1			0	0		
YGORW	520_BD700_SEND_DRIVER	5	3			3	2			2	1			320	48		
YGORW	520_EXIT	1	1			1	1			1	1			0	0		
YGORW	521_FIRST_READ	15	15			5	5			2	2			26460	26460		
YGORW	521_EXIT	1	1			1	1			1	1			0	0		
YGORW	522_READ_SEND_RECORD	23	23			6	6			2	2			139932	139932		
YGORW	522_EXIT	1	1			1	1			1	1			0	0		
YGORW	700_ERROR_DISPLAY	12	12			1	1			1	1			9408	9408		
YGORW	700_EXIT	1	1			1	1			1	1			0	0		
YGORW	800_DROPPED_THRU	1	1			1	1			1	1			0	0		
YGORW	800_EXIT	1	1			1	1			1	1			0	0		
YGPAW	000_CONTROL	44				8				2				3207600			
YGPAW	100_EOO	6				3				3				2646			

UPDATE Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	Num of Stmts				McCabe's CC				Max Nesting				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
YGPAW	100_EXIT_PROGRAM	1				1				1				0			
YGPAW	999_BAD_RESULT	8				2				2				2048			
YGPAW	999_EXIT	1				1				1				0			
YGPCW	000_CONTROL	42				8				2				3061800			
YGPCW	100_EOO	6				3				3				2646			
YGPCW	100_EXIT_PROGRAM	1				1				1				0			
YGPCW	999_BAD_RESULT	7				2				2				1372			
YGPCW	999_EXIT	1				1				1				0			
YGPDW	000_CONTROL	24				4				3				185856			
YGPDW	100_EOO	6				3				3				2646			
YGPDW	100_EXIT_PROGRAM	1				1				1				0			
YGPDW	999_BAD_RZLT	8				2				2				1152			
YGPDW	999_EXIT	1				1				1				0			
YGPFWQ	1_START_PROCESSING	43	43			9	9			2	2			3973888	4486147		
YGPFWQ	1_EXIT_PROGRAM	2	2			2	2			2	2			2	2		
YGPFWQ	1B_EXIT_PROGRAM	1	1			1	1			1	1			0	0		
YGPFWQ	2_PURGE_DRIVER	23	23			8	8			2	2			1123343	1123343		
YGPFWQ	2_EXIT	1	1			1	1			1	1			0	0		
YGPFWQ	4_DELETE_RECORD	6	17			2	4			2	4			3456	49572		
YGPFWQ	4_EXIT	1	1			1	1			1	1			0	0		
YGPFWQ	5_DISPLAY_ARGS	9	9			1	1			1	1			0	0		
YGPFWQ	5_EXIT	1	1			1	1			1	1			0	0		
YGPFWQ	6_RELEASE_REC	5	5			4	4			2	2			2880	2880		
YGPFWQ	6_EXIT	1	1			1	1			1	1			0	0		
YGPFWQ	8_STARS_RESULT	71	71			32	32			2	2			13916	18176		
YGPFWQ	8_EXIT	1	1			1	1			1	1			0	0		
YGPFWQ	9_CALL_YG15WQ	2	2			1	1			1	1			648	800		
YGPFWQ	9_EXIT	1	1			1	1			1	1			0	0		
YGPFWQ	10_RTOS_GONE	3	3			1	1			1	1			432	675		
YGPFWQ	10_EXIT	1	1			1	1			1	1			0	0		
YGPFWQ	11_OPS_CONSOLE	7	7			1	1			1	1			0	0		
YGPFWQ	11_EXIT	1	1			1	1			1	1			0	0		
YGPTWQ	1_BEGIN_PROCESSING	27				9				3				270000			
YGPTWQ	1_EXIT_PROGRAM	1				1				1				0			
YGPTWQ	2_EDIT_ARGS	28				19				4				12348			
YGPTWQ	2_EXIT	1				1				1				0			
YGPTWQ	3_BUILD_TABLE_DRIVER	4				3				1				1024			
YGPTWQ	3_EXIT	1				1				1				0			
YGPTWQ	4_LOAD_TABLE	17				6				2				287300			
YGPTWQ	4_EXIT	1				1				1				0			
YGPTWQ	5_FIND_BOTH	12				3				2				15552			
YGPTWQ	5_EXIT	1				1				1				0			
YGPTWQ	6_SEARCH_T1_TABLE	5				3				1				1280			
YGPTWQ	6_EXIT	1				1				1				0			
YGTFWQ	000_DRIVER	21				3				2				75600			
YGTFWQ	000_EXIT	1				1				1				0			
YGTFWQ	010_READ	13				2				1				7488			
YGTFWQ	010_EXIT	1				1				1				0			
YGTFWQ	020_WRITE	10				2				1				810			
YGTFWQ	020_EXIT	1				1				1				0			
YGTFWQ	030_REWRITE	9				1				1				0			
YGTFWQ	030_EXIT	1				1				1				0			
YGUCW	100_BEGIN_PROCESSING	19		19	19	12		12	12	3		3	3	68400		68400	68400
YGUCW	300_CALL_STGTBL	35		35	35	12		12	12	3		3	3	3472875		3472875	3472875
YGUCW	310_OTS_NULL_CALL	32		32	32	12		12	12	3		3	3	1216800		1216800	1216800
YGUCW	320_I_CALL	159		163	163	42		43	43	5		5	5	1.887E+09		2.07E+09	2.07E+09
YGUCW	300_EXIT	2		2	2	1		1	1	1		1	1	0		0	0
YGUCW	400_INITIALIZE_RTOS_UTILITIES	57		57	57	6		6	6	3		3	3	19976448		19976448	19976448
YGUCW	400_EXIT	1		1	1	1		1	1	1		1	1	0		0	0
YGUCW	500_SEND_104	12		12	12	5		5	5	3		3	3	78732		78732	78732
YGUCW	500_EXIT	1		1	1	1		1	1	1		1	1	0		0	0
YGUCW	510_SEND_TO_MINIS	3		3	3	1		1	1	1		1	1	108		108	108
YGUCW	510_EXIT	1		1	1	1		1	1	1		1	1	0		0	0
YGUCW	600_DO_SAVE	21		21	21	2		2	2	2		2	2	170100		170100	170100

UPDATE Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	Num of Stmts				McCabe's CC				Max Nesting				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
YGUCW	600_TAKE_SAVE	11		11	11	1		1	1	1		1	1	11264		11264	11264
YGUCW	600_EXIT	1		1	1	1		1	1	1		1	1	0		0	0
YGUCW	700_SET_UP_TIME	18		18	18	4		4	4	2		2	2	629442		629442	629442
YGUCW	700_EXIT	1		1	1	1		1	1	1		1	1	0		0	0
YGUCW	710_SET_PORT	16		16	16	4		4	4	2		2	2	40000		40000	40000
YGUCW	710_EXIT	1		1	1	1		1	1	1		1	1	0		0	0
YGUCW	800_RETURN_TO_CRT	11		11	11	2		2	2	2		2	2	118976		118976	118976
YGUCW	800_EXIT	1		1	1	1		1	1	1		1	1	0		0	0
YGUCW	999_BAD_RCOMC_CALL	8		8	8	2		2	2	2		2	2	2592		2592	2592
YGUCW	999_BAD_RCOMC_EXIT	1		1	1	1		1	1	1		1	1	0		0	0
YGUCW	999_BAD_STARS_CALL	7		7	7	2		2	2	2		2	2	5488		5488	5488
YGUCW	999_STARS_EXIT	1		1	1	1		1	1	1		1	1	0		0	0
YGUCW	1000_BUILD_TABLE	17		17	17	8		8	8	2		2	2	49572		49572	49572
YGUCW	1000_EXIT	1		1	1	1		1	1	1		1	1	0		0	0
YGUCW	1200_MOVE_TIME	12		12	12	5		5	5	2		2	2	37632		37632	37632
YGUCW	1200_EXIT	1		1	1	1		1	1	1		1	1	0		0	0
YGUCW	1300_BUILD_STAT_SCREEN	9		9	9	2		2	2	2		2	2	15876		15876	15876
YGUCW	1300_EXIT	1		1	1	1		1	1	1		1	1	0		0	0
YGUCW	1400_CONTROL_RECORD	13		15	15	3		3	3	3		3	3	67392		181500	181500
YGUCW	1400_EXIT	1		1	1	1		1	1	1		1	1	0		0	0
YGUCW	1600_STORE_STATS_DRIVER	7		7	7	3		3	3	1		1	1	5488		5488	5488
YGUCW	1600_EXIT	1		1	1	1		1	1	1		1	1	0		0	0
YGUCW	1700_READ_SYS_ID_FILE	11		11	11	5		5	5	3		3	3	6336		6336	6336
YGUCW	1700_EXIT	1		1	1	1		1	1	1		1	1	0		0	0
YGUCW	1800_SEARCH_STAT_TABLE	4		4	4	3		3	3	1		1	1	900		900	900
YGUCW	1800_EXIT	1		1	1	1		1	1	1		1	1	0		0	0
YGUCW	1900_STORE_DATA	2		2	2	1		1	1	1		1	1	72		72	72
YGUCW	1900_EXIT	1		1	1	1		1	1	1		1	1	0		0	0
YGUCW	2000_REPLACE_SYS_ID_RECORD	7		7	7	2		2	2	2		2	2	2268		2268	2268
YGUCW	2000_EXIT	1		1	1	1		1	1	1		1	1	0		0	0
YGMPW	000_BEGIN_PROCESSING				13				3				0				16848
YGMPW	100_EXIT				1				1				0				0
YGMPW	200_READ_DP_FILE				19				8				1				238336
YGMPW	200_CONTINUE				8				4				2				1152
YGMPW	200_EXIT				1				1				0				0
YGPRW	100_BEGIN_PROCESSING				28				9				1				716800
YGPRW	050_LIST_PORTS				32				8				1				2163200
YGPRW	050_EXIT				1				1				0				0
YGPRW	060_PROCESS_LIST				18				8				2				139392
YGPRW	060_EXIT				1				1				0				0
YGPRW	065_WRITE_REPORT				12				3				1				21168
YGPRW	065_EXIT				1				1				0				0
YGPRW	100_READ_NEW_PORT				53				11				1				25453197
YGPRW	100_EXIT				1				1				0				0
YGPRW	100_EXIT_PROGRAM				1				1				0				0
YGPRW	200_GET_MFST_REC				54				13				2				4024566
YGPRW	200_EXIT				1				1				0				0
YGPRW	210_WRITE_DATA				7				3				0				4375
YGPRW	210_EXIT				1				1				0				0
YGPRW	300_SEND_REPORT				7				2				0				14175
YGPRW	300_EXIT				1				1				0				0
YGPRW	400_BOJ_CALL				8				2				1				9800
YGPRW	400_EXIT				1				1				0				0
YGPRW	500_BAD_STARS_CALL				3				1				0				0
YGPRW	500_EXIT				1				1				0				0
YGPRW	600_EOJ_CALL				3				1				0				1200
YGPRW	600_EXIT				1				1				0				0
YGPRW	700_MOVE_DATA				25				4				2				245025
YGPRW	700_EXIT				1				1				0				0
YGPRW	900_MOVE_INPUT				22				7				1				17248
YGPRW	900_EXIT				1				1				0				0
YGPRW	1000_FIND_PCN				3				2				1				48
YGPRW	1000_EXIT				1				1				0				0
YGPRW	1010_FIND_PCN				3				2				1				48

UPDATE Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	Num of Stmts				McCabe's CC				Max Nesting				Information Flow			
		Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April	Baseline	October	Januaray	April
YGPRW	1010_EXIT				1				1				0				0
YGPRW	1100_DISPLAY_DATA				20				1				0				0
YGPRW	1100_EXIT				1				1				0				0
YGPRW	1200_READ_PORT_FILE				2				2				0				18
YGPRW	1200_EXIT				1				1				0				0
YGPRW	1400_WRITE_HEADERS				19				3				2				9196
YGPRW	1400_EXIT				1				1				0				0
YGPRW	1500_WRITE_HEADERS				9				3				2				5184
YGPRW	1500_EXIT				1				1				0				0
YGPMW	100_BEGIN_PROCESSING				41				8				1				1511424
YGPMW	100_EXIT_PROGRAM				1				1				0				0
YGPMW	200_READ_WRITE				40				12				3				13829760
YGPMW	200_CALL_YG15WQ				27				10				3				657072
YGPMW	200_EXIT				1				1				0				0
YGPMW	400_BOJ_CALL				8				2				1				9800
YGPMW	400_EXIT				1				1				0				0
YGPMW	500_BAD_STARS_CALL				4				1				0				0
YGPMW	500_EXIT				1				1				0				0
YGPMW	600_EOJ_CALL				2				1				0				288
YGPMW	600_EXIT				1				1				0				0
YGPMW	700_BUILD_APO_TABLE				15				4				1				77760
YGPMW	700_EXIT				1				1				0				0
YGPMW	800_SEARCH_TABLE				9				3				1				5625
YGPMW	800_EXIT				1				1				0				0
YGPMW	900_DISPLAY_REC				2				2				1				0
YGPMW	900_EXIT				1				1				0				0

MACA Subsystem Raw Product measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest Lvl				Information Flow			
		Baseline	October	January	March/April	Baseline	October	January	March/April	Baseline	October	January	March/April	Baseline	October	January	March/April
YG12WQ	100_CONTROL	17				6				2				74052			
YG12WQ	100_EXIT_PROGRAM	1				1				1				0			
YG12WQ	200_SET_STARS_ARGUMENTS	17				6				3				166617			
YG12WQ	200_EXIT	1				1				1				0			
YG12WQ	210_LOAD_FILCODE	26				18				7				5850			
YG12WQ	210_EXIT	1				1				1				0			
YG12WQ	220_LOAD_OPIDENT	7				3				3				1008			
YG12WQ	220_EXIT	1				1				1				0			
YG12WQ	230_LOAD_OPERATION	33				13				13				2673			
YG12WQ	230_EXIT	1				1				1				0			
YG12WQ	240_LOAD_LOCK	11				5				5				891			
YG12WQ	240_EXIT	1				1				1				0			
YG12WQ	250_LOAD_ALLL	33				16				16				2673			
YG12WQ	250_EXIT	1				1				1				0			
YG12WQ	260_LOAD_KEY_NAME	21				11				10				3024			
YG12WQ	260_EXIT	1				1				1				0			
YG12WQ	300_STARS_CALL	23				9				9				745200			
YG12WQ	300_EXIT	1				1				1				0			
YG12WQ	400_CHECK_RESULTS	72				51				3				705672			
YG12WQ	400_EXIT	1				1				1				0			
YG12WQ	500_DISPLAY_TROUBLE	21				5				4				31941			
YG12WQ	500_EXIT	1				1				1				0			
YG12WQ	600_MOVE_ARGS	17				1				1				108800			
YG12WQ	600_EXIT	1				1				1				0			
YG43WQ	000_START	1				1				1				16			
YG43WQ	000_STOP_RUN	1				1				1				0			
YG44WQ	000_START	16				1				1				0			
YG44WQ	000_STOP_RUN	1				1				1				0			
YG44WQ	100_INIT_HDR8	1				1				1				36			
YG44WQ	199_EXIT	1				1				1				0			
YG44WQ	200_INIT_HDR10	1				1				1				16			
YG44WQ	299_EXIT	1				1				1				0			
YG44WQ	300_REPORT	5				1				1				125			
YG44WQ	310_READ	36				10				3				4284900			
YG44WQ	300_EXIT	1				1				1				0			
YG44WQ	320_CONSIGNOR_CHANGE	19				6				2				260091			
YG44WQ	320_EXIT	1				1				1				0			
YG44WQ	330_FINISH_HEADER8	15				5				2				47040			
YG44WQ	330_EXIT	1				1				1				0			
YG44WQ	335_WRITE_HDR8	6				2				1				1350			
YG44WQ	335_EXIT	1				1				1				0			
YG44WQ	500_WRITE_HEADER	16				9				2				20736			
YG44WQ	599_EXIT	1				1				1				0			
YG44WQ	600_INIT_HEADER	1				1				1				9			
YG44WQ	699_EXIT	1				1				1				0			
YG44WQ	700_SAVE_HEADER	9				1				1				14400			
YG44WQ	799_EXIT	1				1				1				0			
YG44WQ	800_WRITE_SUMMARY	28				27				1				28672			
YG44WQ	899_EXIT	1				1				1				0			
YG44WQ	930_SAVE_HEADER	13				1				1				29952			
YG44WQ	930_EXIT	1				1				1				0			
YG44WQ	1000_DD_HDR10	8				2				1				19208			
YG44WQ	1000_EXIT	1				1				1				0			
YG44WQ	1010_WRITE_DD_HEADER	7				6				1				3087			
YG44WQ	1010_EXIT	1				1				1				0			
YG44WQ	1020_WRITE_DD_HDR8	12				2				1				62208			
YG44WQ	1020_EXIT	1				1				1				0			
YGADWQ	000_INITIALIZE	1			4	1			2	1			2	0			16
YGADWQ	010_DRIVER_PARA	23			34	20			24	5			5	178112			827424
YGADWQ	090_EXIT_PROGRAM	1			1	1			1	1			1	0			0
YGADWQ	100_ADD_TRAILER	7			7	1			1	1			1	2800			2800
YGADWQ	105_GET_PRIME	32			44	5			8	2			3	3276800			6353600

MACA Subsystem Raw Product measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest Lvl				Information Flow			
		Baseline	October	January	March/April	Baseline	October	January	March/April	Baseline	October	January	March/April	Baseline	October	January	March/April
YGADWQ	110_BUILD_TRAILER	12			12	2			2	2			2	47628			47628
YGADWQ	120_ADD_TRAILER	16			16	4			4	2			2	36864			36864
YGADWQ	130_SEND_TO_MINIS	3			3	1			1	1			1	48			48
YGADWQ	190_EXIT	1			1	1			1	1			1	0			0
YGADWQ	200_ADD_DETAIL	13			21	1			5	1			2	206388			873936
YGADWQ	210_ADD	23			27	4			6	2			3	517500			1190700
YGADWQ	220_SEND_TO_MINIS	2			2	1			1	1			1	18			18
YGADWQ	290_EXIT	1			1	1			1	1			1	0			0
YGADWQ	291_GET_DUP	18			18	4			4	3			3	118098			118098
YGADWQ	291_EXIT	1			1	1			1	1			1	0			0
YGADWQ	293_MOVE_TIME	9			9	3			3	2			2	20736			20736
YGADWQ	293_EXIT	1			1	1			1	1			1	0			0
YGADWQ	300_CHANGE_DETAIL	5			5	1			1	1			1	720			720
YGADWQ	310_GET_DETAIL	27			39	4			7	2			3	395307			797511
YGADWQ	320_UPDATE_ADVANCE	16			16	3			3	2			2	313600			313600
YGADWQ	330_REPLACE_ADVANCE	11			11	3			3	2			2	13475			13475
YGADWQ	340_SEND_TO_MINIS	3			3	1			1	1			1	192			192
YGADWQ	390_EXIT	1			1	1			1	1			1	0			0
YGADWQ	400_COUNTER	10			10	12			12	5			5	3240			3240
YGADWQ	400_EXIT	1			1	1			1	1			1	0			0
YGADWQ	410_COUNTER	7			7	14			14	4			4	448			448
YGADWQ	410_EXIT	1			1	1			1	1			1	0			0
YGADWQ	500_COUNTER	10			10	12			12	5			5	3240			3240
YGADWQ	500_EXIT	1			1	1			1	1			1	0			0
YGADWQ	510_COUNTER	7			7	14			14	4			4	448			448
YGADWQ	510_EXIT	1			1	1			1	1			1	0			0
YGADWQ	600_COMPUTE_ETA	103			103	35			35	2			2	33372			33372
YGADWQ	600_CONTINUE	14			14	4			4	3			3	5600			5600
YGADWQ	600_EXIT	1			1	1			1	1			1	0			0
YGADWQ	605_CALCULATE_ETA_DAY	22			22	7			7	3			3	114048			114048
YGADWQ	605_EXIT	1			1	1			1	1			1	0			0
YGADWQ	610_CHECK_LEAP_YEAR	4			4	2			2	2			2	144			144
YGADWQ	610_EXIT	1			1	1			1	1			1	0			0
YGADWQ	615_ADD_TO_WORKING_DAY	7			7	4			4	3			3	63			63
YGADWQ	615_EXIT	1			1	1			1	1			1	0			0
YGADWQ	620_SUBTRACT_FROM_WORKING_DA	11			11	6			6	4			4	99			99
YGADWQ	620_EXIT	1			1	1			1	1			1	0			0
YGAOWQ	100_OPEN	40				8				3				1324960			
YGAOWQ	320_SEND_DATA	11				3				3				4851			
YGAOWQ	330_CLOSE_MESSAGE	16				4				4				28224			
YGAOWQ	400_EXIT_PROGRAM	1				1				1				0			
YGAOWQ	600_BAD_CODE	4				2				2				256			
YGAOWQ	650_CLOSE_MESSAGES	12				3				3				15552			
YGAOWQ	690_EXIT	1				1				1				0			
YGBTWQ	001_START	65			65	7			7	2			2	4394000			4394000
YGBTWQ	002_ABORT	4			4	2			2	2			2	400			400
YGBTWQ	003_COUNTERS	45			46	1			1	1			1	0			0
YGBTWQ	003_EXIT	1			1	1			1	1			1	0			0
YGBTWQ	004_COUNTERS	16			16	1			1	1			1	0			0
YGBTWQ	004_EXIT	1			1	1			1	1			1	0			0
YGBTWQ	005_AF_COUNTERS	13			13	1			1	1			1	0			0
YGBTWQ	005_EXIT	1			1	1			1	1			1	0			0
YGBTWQ	006_ERR_COUNTERS	2			2	1			2	1			1	8			72
YGBTWQ	006_EXIT	1			1	1			1	1			1	0			0
YGBTWQ	006A_ERR_DISP	6			6	1			1	1			1	2400			3750
YGBTWQ	006A_EXIT	1			1	1			1	1			1	0			0
YGCCWQ	000_INITIALIZE	2				1				1				0			
YGCCWQ	010_START	6				2				2				1536			
YGCCWQ	020_EXIT_PROGRAM	1				1				1				0			
YGCCWQ	100_BEGIN	8				2				2				6272			
YGCCWQ	110_LOOP	26				4				2				1269866			
YGCCWQ	140_PROCESS_OUT	6				3				2				24			

MACA Subsystem Raw Product measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest Lvl				Information Flow			
		Baseline	October	January	March/April	Baseline	October	January	March/April	Baseline	October	January	March/April	Baseline	October	January	March/April
YGCCWQ	150_WRAP_UP	3				2				1				12			
YGCCWQ	160_ERROR_LOOK_UP	6				2				2				6144			
YGCCWQ	170_EXIT	1				1				1				0			
YGDGWQ	100_START	18			18	2			2	2			2	285768			285768
YGDGWQ	200_CYCLE	7			7	3			3	2			2	28			28
YGDGWQ	300_ADD	6			6	2			2	2			2	96			96
YGDGWQ	400_JD	2			2	1			1	1			1	2			2
YGDGWQ	500_EXIT_PROGRAM	1			1	1			1	1			1	0			0
YGEDWQ	000_INITIALIZE	3			3	1			1	1			1	0			0
YGEDWQ	010_DRIVER_PARA	36			36	2			2	2			2	147456			147456
YGEDWQ	020_EXIT_PROGRAM	1			1	1			1	1			1	0			0
YGEDWQ	100_DOCUMENT_IDENTIFIER	10			10	15			15	2			2	4000			4000
YGEDWQ	100_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	106_BAY_LOC	2			2	1			1	1			1	2			2
YGEDWQ	106_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	108_HR_DATE_RCVD	2			2	1			1	1			1	2			2
YGEDWQ	108_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	110_CONSIGNOR	12			12	14			14	2			2	15552			15552
YGEDWQ	110_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	115_HR_DATE_SHPD	2			2	1			1	1			1	2			2
YGEDWQ	115_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	120_AIR_CMDTY	14			14	12			12	3			3	5600			5600
YGEDWQ	120_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	130_SP_HNDL	19			19	22			21	3			3	17100			17100
YGEDWQ	130_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	140_AIR_DIMEN_CODE	6			6	5			5	2			2	864			864
YGEDWQ	140_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	150_APOE	8			8	12			12	2			2	1800			1800
YGEDWQ	150_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	160_APOD	6			6	2			2	2			2	864			864
YGEDWQ	160_SEARCH	16			16	5			5	3			3	14400			14400
YGEDWQ	160_ERROR	4			4	1			1	1			1	36			36
YGEDWQ	160_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	170_SHPMT_MODE	3			3	10			10	2			2	12			12
YGEDWQ	170_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	175_MANIF_REF	2			2	1			1	1			1	2			2
YGEDWQ	175_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	180_PERS_PROPERTY_TCN_EDIT	7			7	8			8	2			2	1575			1575
YGEDWQ	180_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	181_MOB_TCN_EDIT	27			27	11			11	2			2	369603			369603
YGEDWQ	181_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	190_SAM_EDIT	29			29	21			21	2			2	789525			789525
YGEDWQ	190_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	200_REGULAR_EDIT	51			51	34			34	3			3	7364400			7364400
YGEDWQ	200_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	210_CONSIGNEE	11			11	14			14	3			3	14256			14256
YGEDWQ	210_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	220_TRNSP_PRI_CRGO	9			9	5			5	2			2	36			36
YGEDWQ	220_EDIT_PRI	26			30	57			52	6			2	14976			9720
YGEDWQ	220_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	230_REQD_DELVRY_DA	14			14	17			17	4			4	18144			18144
YGEDWQ	230_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	231_RDD_ERROR	3			3	1			1	1			1	12			12
YGEDWQ	232_RDD_ERROR	4			4	1			1	1			1	576			576
YGEDWQ	232_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	235_TEMP_EDIT_CORR	8			8	4			4	3			3	5000			5000
YGEDWQ	235_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	240_HR_DATE_PROCD	6			6	6			6	3			3	864			864
YGEDWQ	240_DATE	5			5	3			3	2			2	180			180
YGEDWQ	240_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	250_ETA	6			6	6			6	3			3	486			486
YGEDWQ	250_EXIT	1			1	1			1	1			1	0			0

MACA Subsystem Raw Product measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest Lvl				Information Flow			
		Baseline	October	January	March/April	Baseline	October	January	March/April	Baseline	October	January	March/April	Baseline	October	January	March/April
YGEDWQ	260_TAC_CODE	22			22	19			19	3			3	55000			55000
YGEDWQ	260_TAC_SPACES	6			6	7			7	2			2	216			216
YGEDWQ	260_TAC_ALPHA	29			29	15			15	3			3	190269			190269
YGEDWQ	260_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	270_PRIM_DOC_PIECES	5			5	5			5	3			3	45			45
YGEDWQ	270_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	271_PCS_ERROR	4			4	1			1	1			1	144			144
YGEDWQ	271_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	280_PRIM_DOC_WT	12			12	6			6	3			3	4800			4800
YGEDWQ	280_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	281_WT_ERROR	4			4	1			1	1			1	324			324
YGEDWQ	281_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	282_WT_ERROR	4			4	1			1	1			1	144			144
YGEDWQ	282_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	290_PRIM_DOC_CUBE	12			12	6			6	3			3	4800			4800
YGEDWQ	290_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	291_CUBE_ERROR	4			4	1			1	1			1	324			324
YGEDWQ	291_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	292_CUBE_ERROR	4			4	1			1	1			1	144			144
YGEDWQ	292_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	300_LIST_ERRORS	6			12	2			4	2			3	486			5292
YGEDWQ	301_DEFAULT_MSG	16			24	2			4	2			2	230400			470400
YGEDWQ	302_BEGIN_LISTING	7			7	2			2	2			2	63			63
YGEDWQ	303_WRITE	7			15	1			3	1			2	1008			8640
YGEDWQ	303_A_EXIT_PROGRAM	1			1	1			1	1			1	0			0
YGEDWQ	304_WRITE_ERR_MESSAGE	2			2	1			1	1			1	2			2
YGEDWQ	305_MOVES	60			76	9			13	3			3	3810240			6569136
YGEDWQ	305_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	400_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	500_ERROR_COUNT	21			21	23			23	6			6	27216			27216
YGEDWQ	500_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	510_AF_COUNT	1			1	1			1	1			1	16			16
YGEDWQ	510_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	520_AM_COUNT	1			1	1			1	1			1	16			16
YGEDWQ	520_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	530_NAV_COUNT	1			1	1			1	1			1	36			36
YGEDWQ	530_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	540_MAR_COUNT	1			1	1			1	1			1	16			16
YGEDWQ	540_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	900_FILL_TABLE	10			16	2			4	2			4	4199040			7683984
YGEDWQ	900_FIND_DEVICE	4			4	4			4	2			2	16			16
YGEDWQ	900_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	1000_TOTAL_COUNTERS	72			72	25			25	3			3	373248			373248
YGEDWQ	1000_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	1100_VALID_COUNTERS	82			83	28			29	3			3	1845000			2689200
YGEDWQ	1100_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	1200_INVALID_COUNTERS	82			82	28			28	3			3	1260832			1260832
YGEDWQ	1200_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	1301_AF_CHECK_COUNT	10			10	12			12	5			5	360			360
YGEDWQ	1301_EXIT	1			1	1			1	1			1	0			0
YGEDWQ	1302_TCN_1_CHECK	9			9	15			15	5			5	81			81
YGEDWQ	1302_EXIT	1			1	1			1	1			1	0			0
YGETWQ	010_HOUSEKEEPING	2				1				1				0			
YGETWQ	020_DRIVER_PARA	36				13				10				1440000			
YGETWQ	030_LIST_ERRORS	18				2				2				490050			
YGETWQ	050_BEGIN_LISTING	7				1				1				1575			
YGETWQ	060_WRITE_ERR_MESSAGE	1				1				1				1			
YGETWQ	070_MOVES	37				5				2				1480000			
YGETWQ	070_EXIT	1				1				1				0			
YGETWQ	090_EXIT_PROGRAM	1				1				1				0			
YGETWQ	100_TE6_EDIT	0				1				0				0			
YGETWQ	110_ROUND_COUNT	5				3				2				180			

MACA Subsystem Raw Product measures

Program Name	Paragraph (Procedure) Name	# of Stmts Baseline	October	January	March/April	McCabe's CC Baseline	October	January	March/April	Max Nest Lvl Baseline	October	January	March/April	Information Flow Baseline	October	January	March/April
YGETWQ	120_LOAD_STORAGE_GROUP	4				2				2				144			
YGETWQ	130_STOCK_NUMBER	20				8				6				48020			
YGETWQ	140_DODIC	9				10				3				5184			
YGETWQ	150_CLASSIFICATION	20				10				2				118580			
YGETWQ	190_EXIT	1				1				1				0			
YGETWQ	200_TJ6_EDIT	0				1				0				0			
YGETWQ	210_ROUND_COUNT	1				1				1				0			
YGETWQ	220_LOAD_STORAGE_GROUP	4				2				2				144			
YGETWQ	230_STOCK_NUMBER	20				8				6				48020			
YGETWQ	240_DODIC	4				3				2				144			
YGETWQ	250_COMPARABILITY_CODE	4				2				2				144			
YGETWQ	290_EXIT	1				1				1				0			
YGETWQ	300_TE7_EDIT	0				1				0				0			
YGETWQ	310_NEW	4				3				2				144			
YGETWQ	320_EXPLOSIVE_LOT_NBR	2				1				1				8			
YGETWQ	320_CONT	9				4				2				5625			
YGETWQ	330_PIECES	4				3				2				144			
YGETWQ	340_WEIGHT	4				3				2				144			
YGETWQ	350_CUBE	4				3				2				144			
YGETWQ	390_EXIT	1				1				1				0			
YGETWQ	400_T9_EDIT	0				1				0				0			
YGETWQ	410_SUPPLEMENTAL_INFO	9				2				2				3969			
YGETWQ	420_SEQUENCE_NUMBER	6				2				2				216			
YGETWQ	490_EXIT	1				1				1				0			
YGETWQ	500_TH8_TF8_EDIT	0				1				0				0			
YGETWQ	510_CONSIGNOR	4				2				2				144			
YGETWQ	520_LAST_NAME	8				2				2				2592			
YGETWQ	520_CONT	9				9				2				5625			
YGETWQ	530_INITIALS	4				2				2				144			
YGETWQ	540_GRADE	8				5				3				1800			
YGETWQ	550_POS_71	4				2				2				144			
YGETWQ	560_WEIGHT	6				4				2				486			
YGETWQ	570_POS_77_80	4				2				2				144			
YGETWQ	590_EXIT	1				1				1				0			
YGETWQ	600_TP8_EDIT	0				1				0				0			
YGETWQ	610_POV_YEAR	4				2				2				144			
YGETWQ	620_POV_MAKE	4				3				2				144			
YGETWQ	630_TP8_LAST_NAME	5				3				2				720			
YGETWQ	640_TP8_INITIAL	4				3				2				144			
YGETWQ	650_TP8_GRADE	8				5				3				1800			
YGETWQ	660_VEH_LIC_PLATE_STATE	4				4				2				576			
YGETWQ	670_VEH_LIC_PLATE_NO	9				11				6				2916			
YGETWQ	680_VEH_COLOR_DESCRIPTION	4				3				2				144			
YGETWQ	690_EXIT	1				1				1				0			
YGETWQ	700_T5_EDIT	0				1				0				0			
YGETWQ	710_CONSIGNOR	1				1				1				0			
YGETWQ	720_T_5_LENGTH	5				3				2				320			
YGETWQ	730_T_5_WIDTH	5				3				2				320			
YGETWQ	740_T_5_HEIGHT	5				3				2				320			
YGETWQ	750_T_5_PIECES	11				5				3				2816			
YGETWQ	760_T_5_WEIGHT	11				5				3				2816			
YGETWQ	770_T_5_CUBE	11				5				3				2816			
YGETWQ	790_EXIT	1				1				1				0			
YGETWQ	800_TV5_EDIT	0				1				0				0			
YGETWQ	810_MODEL	7				2				2				700			
YGETWQ	810_CONT	8				4				2				2048			
YGETWQ	820_BII_FIELD	1				1				1				0			
YGETWQ	830_BII_NUMBER	4				2				2				144			
YGETWQ	840_CARGO_LENGTH	5				3				2				320			
YGETWQ	850_CARGO_WIDTH	5				3				2				320			
YGETWQ	860_CARGO_HEIGHT	5				3				2				320			
YGETWQ	870_SERIAL_NUMBER	2				1				1				8			

MACA Subsystem Raw Product measures

Program Name	Paragraph (Procedure) Name	# of Stmts Baseline	October	January	March/April	McCabe's CC Baseline	October	January	March/April	Max Nest Lvl Baseline	October	January	March/April	Information Flow Baseline	October	January	March/April
YGETWQ	870_CONT	9				4				2				5625			
YGETWQ	890_EXIT	1				1				1				0			
YGETWQ	900_FILL_TABLE	8				2				2				3548448			
YGETWQ	910_FIND_DEVICE	3				4				2				48			
YGETWQ	910_EXIT	1				1				1				0			
YGETWQ	1000_VALID_COUNTERS	18				13				10				23328			
YGETWQ	1000_EXIT	1				1				1				0			
YGETWQ	1100_INVALID_COUNTERS	18				13				10				23328			
YGETWQ	1100_EXIT	1				1				1				0			
YGETWQ	1200_T_6_EDIT	0				1				0				0			
YGETWQ	1210_ROUND_COUNT	1				1				1				0			
YGETWQ	1230_STOCK_NUMBER	20				8				6				48020			
YGETWQ	1240_NOMENCLATURE	7				3				2				567			
YGETWQ	1290_EXIT	1				1				1				0			
YGFPWQ	000_DRIVER	26				4				2				988650			
YGFPWQ	100_EXIT_PROGRAM	1				1				1				0			
YGFPWQ	200_PURGE_DRIVER	33				9				3				1069200			
YGFPWQ	200_EXIT	1				1				1				0			
YGFPWQ	300_DEL_DRIVER	9				7				2				2304			
YGFPWQ	300_EXIT	1				1				1				0			
YGFPWQ	400_DEL_BY_ADDRS	5				2				2				1280			
YGFPWQ	400_EXIT	1				1				1				0			
YGFPWQ	500_DEL_BY_KEYVALUE	5				2				2				1280			
YGFPWQ	500_EXIT	1				1				1				0			
YGFPWQ	600_RELEASE_REC	5				1				1				180			
YGFPWQ	600_EXIT	1				1				1				0			
YGFPWQ	700_STARS_RESULT	102				45				2				1619352			
YGFPWQ	700_EXIT	1				1				1				0			
YGFPWQ	800_CALL_YG12WQ	2				1				1				648			
YGFPWQ	800_EXIT	1				1				1				0			
YGFPWQ	900_RTOS_GONE	2				1				1				32			
YGFPWQ	900_EXIT	1				1				1				0			
YGFPWQ	1000_OPS_CONSOLE	7				1				1				0			
YGFPWQ	1000_EXIT	1				1				1				0			
YGFPWQ	1301_AF_CHECK_COUNT	10				13				6				360			
YGFPWQ	1301_EXIT	1				1				1				0			
YGFPWQ	1302_TCN_1_CHECK	7				14				4				28			
YGFPWQ	1302_EXIT	1				1				1				0			
YGINWQ	000_START	56				18				7				8257536			
YGINWQ	000_EXIT_PROGRAM	1				1				1				0			
YGINWQ	100_CALL_RCOMC	47				17				3				5306112			
YGINWQ	100_EXIT	1				1				1				0			
YGINWQ	200_MINIS_BREAKDOWN	6				2				2				3750			
YGINWQ	200_EXIT	1				1				1				0			
YGINWQ	300_CRT_BREAKDOWN	7				4				3				567			
YGINWQ	300_EXIT	1				1				1				0			
YGINWQ	400_INIT_STARS	10				3				2				12250			
YGINWQ	400_EXIT	1				1				1				0			
YGINWQ	500_INIT_RBTCHO	13				3				2				29952			
YGINWQ	500_EXIT	1				1				1				0			
YGINWQ	600_EOO_CALL	10				3				2				20250			
YGINWQ	600_EXIT	1				1				1				0			
YGINWQ	650_SEND_NULL	17				3				2				156672			
YGINWQ	650_EXIT	1				1				1				0			
YGINWQ	700_SEND_NULL	14				3				2				222264			
YGINWQ	700_EXIT	1				1				1				0			
YGINWQ	800_APOE_BLOCK	4				1				1				256			
YGINWQ	810_MOVE_KEY	15				4				2				77760			
YGINWQ	800_EXIT	1				1				1				0			
YGMAWQ	100_BEGIN	6				1				1				3456			
YGMAWQ	300_PROCESS	98				47				6				219325568			
YGMAWQ	300_EXIT	1				1				1				0			

MACA Subsystem Raw Product measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest Lvl				Information Flow			
		Baseline	October	January	March/April	Baseline	October	January	March/April	Baseline	October	January	March/April	Baseline	October	January	March/April
YGMAWQ	400_CHECK_RZLT	15				5				5				24000			
YGMAWQ	400_EXIT	1				1				1				0			
YGMAWQ	500_SAVE	9				2				2				0			
YGMAWQ	500_CALL_SUBSAVE	15				4				2				13500			
YGMAWQ	500_SLEEP	1				1				1				36			
YGMAWQ	500_SLEEP_EXIT	0				1				0				0			
YGMAWQ	500_EXIT	1				1				1				0			
YGMOWQ	000_CONTROL_MODULE	24				10				2				912600			
YGMOWQ	000_EXIT	1				1				1				0			
YGMOWQ	100_INIT_UNIT_BLOCK	32				2				2				6027392			
YGMOWQ	100_EXIT	1				1				1				0			
YGMOWQ	200_SEND_UNIT_BLOCKS	44				8				2				13310000			
YGMOWQ	200_EXIT	1				1				1				0			
YGMOWQ	300_BUILD_UNIT_BLOCKS	35				19				10				591500			
YGMOWQ	300_EXIT	1				1				1				0			
YGMOWQ	340_SETUP_TO_CLEAR_UB	1				1				1				0			
YGMOWQ	340_EXIT	1				1				1				0			
YGMOWQ	350_WRITE_UB_REC	1				1				1				0			
YGMOWQ	350_EXIT	1				1				1				0			
YGMOWQ	400_ADD_570	8				1				1				18432			
YGMOWQ	400_EXIT	1				1				1				0			
YGMOWQ	500_ADD_580	9				3				2				28224			
YGMOWQ	500_EXIT	1				1				1				0			
YGMOWQ	1000_CONVERT_TIME	1				1				1				0			
YGMOWQ	1000_EXIT	1				1				1				0			
YGMOWQ	1100_TIME_CHECK	1				1				1				0			
YGMOWQ	1100_EXIT	1				1				1				0			
YGMOWQ	1301_AF_CHECK_COUNT	10				13				6				640			
YGMOWQ	1301_EXIT	1				1				1				0			
YGMOWQ	1302_TCN_1_CHECK	9				15				5				81			
YGMOWQ	1302_EXIT	1				1				1				0			
YGOTWQ	001_START	21			21	5			5	2			2	27216			27216
YGOTWQ	100_SEND	24			25	25			25	6			6	7776			14400
YGOTWQ	200_EXIT_PROGRAM	1			1	1			1	1			1	0			0
YGOTWQ	300_MINIS_OUTPUT	30			30	4			4	2			2	1310430			1310430
YGOTWQ	300_EXIT	1			1	1			1	1			1	0			0
YGOTWQ	500_RBTCHO_CRT_OUTPUT	35			35	6			6	3			3	1819440			1819440
YGOTWQ	500_EXIT	1			1	1			1	1			1	0			0
YGRNWQ	000_START	33			41	7			10	4			5	1597200			4628736
YGRNWQ	000_EXIT	1			1	1			1	1			1	0			0
YGRNWQ	100_BUILD_ADVANCE	33			40	8			11	2			2	5765892			11924640
YGRNWQ	100_ADD_ADVANCE	12			22	4			8	3			3	10800			95832
YGRNWQ	100_BUILD_EXIT	1			1	1			1	1			1	0			0
YGRNWQ	110_CHECK_ZONE	10			10	6			6	2			2	16000			16000
YGRNWQ	110_EXIT	1			1	1			1	1			1	0			0
YGRNWQ	115_APO_SEARCH	7			7	4			4	2			2	4032			4032
YGRNWQ	115_EXIT	1			1	1			1	1			1	0			0
YGRNWQ	200_NO_HIT	38			58	11			18	3			3	3558168			12272800
YGRNWQ	200_NO_HIT_EXIT	1			1	1			1	1			1	0			0
YGRNWQ	300_UPDATE_ADVANCE	14			17	3			4	2			2	201600			347633
YGRNWQ	300_REPLACE	13			13	4			4	3			3	11700			11700
YGRNWQ	300_EXIT	1			1	1			1	1			1	0			0
YGRNWQ	500_SEND_NOTICE	17			17	6			6	4			4	34425			34425
YGRNWQ	500_EXIT	1			1	1			1	1			1	0			0
YGRNWQ	510_SERVICE_CHECK	9			9	19			19	5			5	2025			2025
YGRNWQ	510_EXIT	1			1	1			1	1			1	0			0
YGRNWQ	513_AIR_FORCE	6			6	2			2	2			2	4704			4704
YGRNWQ	513_EXIT	1			1	1			1	1			1	0			0
YGRNWQ	514_ARMY	6			6	2			2	2			2	7350			7350
YGRNWQ	514_EXIT	1			1	1			1	1			1	0			0
YGRNWQ	515_NAVY	6			6	2			2	2			2	7350			7350
YGRNWQ	515_EXIT	1			1	1			1	1			1	0			0

MACA Subsystem Raw Product measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest Lvl				Information Flow			
		Baseline	October	January	March/April	Baseline	October	January	March/April	Baseline	October	January	March/April	Baseline	October	January	March/April
YGRNWQ	516_MARINE	9			9	2			2	2			2	14400			14400
YGRNWQ	516_EXIT	1			1	1			1	1			1	0			0
YGRNWQ	517_GET_ADDRESS	12			12	3			3	2			2	52272			52272
YGRNWQ	517_EXIT	1			1	1			1	1			1	0			0
YGRNWQ	610_SERVICE_CHECK	13			13	24			24	6			6	22932			22932
YGRNWQ	610_EXIT	1			1	1			1	1			1	0			0
YGRNWQ	700_DODAAC_CHECK	9			9	14			14	4			4	2025			2025
YGRNWQ	700_EXIT	1			1	1			1	1			1	0			0
YGRNWQ	710_DODAAC_COUNT	7			7	14			14	4			4	1008			1008
YGRNWQ	710_EXIT	1			1	1			1	1			1	0			0
YGRNWQ	800_COUNTER	6			6	8			8	3			3	1536			1536
YGRNWQ	800_EXIT	1			1	1			1	1			1	0			0
YGRNWQ	810_COUNTER	9			9	15			15	5			5	1296			1296
YGRNWQ	810_EXIT	1			1	1			1	1			1	0			0
YGRNWQ	900_YGAOWQ_CALL	17			17	2			2	2			2	108800			108800
YGRNWQ	900_EXIT	1			1	1			1	1			1	0			0
YGRNWQ	910_PROJ_CODE_CHK				3				3				2				12
YGRNWQ	910_EXIT				1				1				1				0
YGRNWQ	920_CODE_J_CHK				4				6				2				784
YGRNWQ	920_EXIT				1				1				1				0
YGS4WQ	000_START	6				1				1				0			
YGS4WQ	000_STOP_RUN	1				1				1				0			
YGS4WQ	100_INIT_HDR8	1				1				1				324			
YGS4WQ	199_EXIT	1				1				1				0			
YGS4WQ	200_INIT_HDR10	1				1				1				729			
YGS4WQ	299_EXIT	1				1				1				0			
YGS4WQ	300_REPORT	3				1				1				27			
YGS4WQ	310_READ	37				9				3				3601728			
YGS4WQ	310_CONT	20				5				3				196020			
YGS4WQ	399_EXIT	1				1				1				0			
YGS4WQ	310_SERVICE_CHANGE	11				4				1				43659			
YGS4WQ	310_EXIT	1				1				1				0			
YGS4WQ	320_CONSIGNOR_CHANGE	8				3				2				25088			
YGS4WQ	320_EXIT	1				1				1				0			
YGS4WQ	400_SERVICE_REPORT	11				6				6				99			
YGS4WQ	499_EXIT	1				1				1				0			
YGS4WQ	500_WRITE_HEADER	10				9				1				4840			
YGS4WQ	599_EXIT	1				1				1				0			
YGS4WQ	600_INIT_HEADER	2				1				1				162			
YGS4WQ	699_EXIT	1				1				1				0			
YGS4WQ	700_SAVE_HEADER	12				1				1				292032			
YGS4WQ	799_EXIT	1				1				1				0			
YGS4WQ	800_WRITE_SUMMARY	38				34				1				196992			
YGS4WQ	899_EXIT	1				1				1				0			
YGS5WQ	000_DRIVER	17				7				2				5508			
YGS5WQ	000_EXIT_PROGRAM	1				1				1				0			
YGS5WQ	100_SLEW_TRANSLATOR_HSKP	13				3				2				1300			
YGS5WQ	100_EXIT	1				1				1				0			
YGS5WQ	200_SLEW_TRANSLATOR_DRIVER	4				2				2				64			
YGS5WQ	200_EXIT	1				1				1				0			
YGS5WQ	210_READ_REPORT_FILE	6				3				2				384			
YGS5WQ	210_EXIT	1				1				1				0			
YGS5WQ	220_TRANSLATE_AND_WRITE	42				9				2				122472			
YGS5WQ	220_EXIT	1				1				1				0			
YGS5WQ	221_SPACE_LINE	5				2				1				2880			
YGS5WQ	221_EXIT	1				1				1				0			
YGS5WQ	222_REPORT_DATA	4				3				2				1936			
YGS5WQ	222_EXIT	1				1				1				0			
YGS5WQ	300_SLEW_TRANSLATOR_WRAPUP	1				1				1				0			
YGS5WQ	300_EXIT	1				1				1				0			
YGS5WQ	400_RPT_TRANSMITTER_HSKP	18				1				1				152352			
YGS5WQ	400_EXIT	1				1				1				0			

MACA Subsystem Raw Product measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest Lvl				Information Flow			
		Baseline	October	January	March/April	Baseline	October	January	March/April	Baseline	October	January	March/April	Baseline	October	January	March/April
YGS5WQ	500_RPT_TRANSMITTER_DRIVER	4				3				1				256			
YGS5WQ	500_EXIT	1				1				1				0			
YGS5WQ	520_BD700_SEND_DRIVER	2				2				1				32			
YGS5WQ	520_EXIT	1				1				1				0			
YGS5WQ	521_FIRST_READ	10				2				1				3240			
YGS5WQ	521_EXIT	1				1				1				0			
YGS5WQ	522_READ_SEND_RECORD	10				3				2				10240			
YGS5WQ	522_EXIT	1				1				1				0			
YGS5WQ	700_ERROR_DISPLAY	6				1				1				0			
YGS5WQ	700_EXIT	1				1				1				0			
YGX2WQ	000_START	9				3				2				81			
YGX2WQ	000_STOP_RUN	1				1				1				0			
YGX2WQ	100_BOJ	13				2				2				40768			
YGX2WQ	199_EXIT	1				1				1				0			
YGX2WQ	200_BUILD	15				4				2				116160			
YGX2WQ	205_CALL	63				34				7				40118652			
YGX2WQ	205_EXIT	1				1				1				0			
YGX2WQ	210_SERVICE_CHOICES	6				3				2				864			
YGX2WQ	300_WRAP_UP	7				2				2				2268			
YGX2WQ	399_EXIT	1				1				1				0			
YGX2WQ	400_SERVICE_CHECK	12				20				6				432			
YGX2WQ	400_EXIT	1				1				1				0			
YGX2WQ	410_SERVICE_CHECK	15				25				7				6000			
YGX2WQ	410_EXIT	1				1				1				0			
YGX2WQ	420_DODAAC_CHECK	8				14				4				32			
YGX2WQ	420_EXIT	1				1				1				0			
YGX2WQ	440_DLA	13				6				6				832			
YGX2WQ	440_EXIT	1				1				1				0			
YGX2WQ	500_SET_RANGE	17				5				2				49572			
YGX2WQ	500_EXIT	1				1				1				0			
YGX3WQ	000_START	3				2				2				147			
YGX3WQ	000_STOP_RUN	1				1				1				0			
YGX4WQ	000_START	17				1				1				0			
YGX4WQ	000_STOP_RUN	1				1				1				0			
YGX4WQ	100_INIT_HDR8	1				1				1				225			
YGX4WQ	199_EXIT	1				1				1				0			
YGX4WQ	200_INIT_HDR10	1				1				1				256			
YGX4WQ	299_EXIT	1				1				1				0			
YGX4WQ	300_REPORT	5				1				1				125			
YGX4WQ	310_READ	40				12				3				7225000			
YGX4WQ	300_EXIT	1				1				1				0			
YGX4WQ	310_CHANGE_SERVICE	15				7				3				77760			
YGX4WQ	310_EXIT	1				1				1				0			
YGX4WQ	320_CONSIGNOR_CHANGE	19				6				2				462384			
YGX4WQ	320_EXIT	1				1				1				0			
YGX4WQ	330_FINISH_HEADER8	15				5				2				47040			
YGX4WQ	330_EXIT	1				1				1				0			
YGX4WQ	335_WRITE_HDR8	9				3				3				5625			
YGX4WQ	335_EXIT	1				1				1				0			
YGX4WQ	400_SERVICE_REPORT	22				6				6				12672			
YGX4WQ	499_EXIT	1				1				1				0			
YGX4WQ	500_WRITE_HEADER	33				4				3				363825			
YGX4WQ	599_EXIT	1				1				1				0			
YGX4WQ	600_INIT_HEADER	1				1				1				9			
YGX4WQ	699_EXIT	1				1				1				0			
YGX4WQ	700_SAVE_HEADER	15				1				1				91260			
YGX4WQ	799_EXIT	1				1				1				0			
YGX4WQ	800_WRITE_SUMMARY	44				30				2				372416			
YGX4WQ	899_EXIT	1				1				1				0			
YGX4WQ	900_DLA_BREAKDOWN	14				3				1				72576			
YGX4WQ	900_EXIT	1				1				1				0			
YGX4WQ	920_DLA_SERVICE	11				6				6				99			

MACA Subsystem Raw Product measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Max Nest Lvl				Information Flow			
		Baseline	October	January	March/April	Baseline	October	January	March/April	Baseline	October	January	March/April	Baseline	October	January	March/April
YGX4WQ	920_EXIT	1				1				1				0			
YGX4WQ	930_SAVE_HEADER	11				1				1				39600			
YGX4WQ	930_EXIT	1				1				1				0			
YGX4WQ	950_AF_OVERSEAS_COSIGNORS	16				4				2				147456			
YGX4WQ	950_EXIT	1				1				1				0			
YGX5WQ	000_DRIVER	17				7				2				5508			
YGX5WQ	000_STOP_RUN	1				1				1				0			
YGX5WQ	100_SLEW_TRANSLATOR_HSKP	13				3				2				1300			
YGX5WQ	100_EXIT	1				1				1				0			
YGX5WQ	200_SLEW_TRANSLATOR_DRIVER	4				2				2				64			
YGX5WQ	200_EXIT	1				1				1				0			
YGX5WQ	210_READ_REPORT_FILE	6				3				2				384			
YGX5WQ	210_EXIT	1				1				1				0			
YGX5WQ	220_TRANSLATE_AND_WRITE	42				9				2				122472			
YGX5WQ	220_EXIT	1				1				1				0			
YGX5WQ	221_SPACE_LINE	5				2				1				2880			
YGX5WQ	221_EXIT	1				1				1				0			
YGX5WQ	222_REPORT_DATA	4				3				2				1936			
YGX5WQ	222_EXIT	1				1				1				0			
YGX5WQ	300_SLEW_TRANSLATOR_WRAPUP	1				1				1				0			
YGX5WQ	300_EXIT	1				1				1				0			
YGX5WQ	400_RPT_TRANSMITTER_HSKP	18				1				1				152352			
YGX5WQ	400_EXIT	1				1				1				0			
YGX5WQ	500_RPT_TRANSMITTER_DRIVER	4				3				1				256			
YGX5WQ	500_EXIT	1				1				1				0			
YGX5WQ	520_BD700_SEND_DRIVER	2				2				1				32			
YGX5WQ	520_EXIT	1				1				1				0			
YGX5WQ	521_FIRST_READ	12				3				2				6912			
YGX5WQ	521_EXIT	1				1				1				0			
YGX5WQ	522_READ_SEND_RECORD	10				3				2				10240			
YGX5WQ	522_EXIT	1				1				1				0			
YGX5WQ	700_ERROR_DISPLAY	6				1				1				0			
YGX5WQ	700_EXIT	1				1				1				0			

B-84

CRQS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts Baseline	October	January	April	McCabe's CC Baseline	October	January	April	Nest Level Baseline	October	January	April	Information Flow Baseline	October	January	April
AUTIN	000_DRIVER	6				4				1				2400			
AUTIN	0100_READ_AUTODIN_MESG	13				5				4				15925			
AUTIN	0300_RAUTIN_ERR	6				5				3				0			
BLDISP	0100_DRIVER	4				2				1				36			
BLDISP	0200_OPEN_FILES	5				2				1				80			
BLDISP	0300_READ_INPUT	1				1				1				1			
BLDISP	0400_BUILD_KEY_GETRAN	14				3				2				43904			
BLDISP	0410_EDIT	38				19				4				2470950			
BLDISP	0411_CHK_PQ_CQ	5				3				3				180			
BLDISP	0412_CHK_HQ_DQ	5				3				3				180			
BLDISP	0413_CHK_BQ_TQ	5				3				3				180			
BLDISP	0414_CHK_MQ_AQ	5				3				3				180			
BLDISP	0420_BUILD_NUM_FIELDS	26				9				3				355914			
BLDISP	0430_CHGREC	6				2				2				54			
BLDISP	0440_NEXT_READ	2				2				1				2			
BLDISP	0500_EXIT	1				1				1				0			
BLDISP	0600_CLOSE_FILES	2				1				1				0			
BLDISP	0700_CONUS_OUT_CHECK	2				2				2				32			
BLDISP	0900_GETRAN_MESSAGE	7				5				2				1008			
BLDISP	0900_ATL_PAC_MESSAGE	10				5				2				9000			
BLDISP	0900_INB_OUTB_MESSAGE	10				5				2				9000			
BLDISP	0900_SIGN_INCORRECT	10				5				2				23040			
BLDISP	0900_MONTH_MESSAGE	8				5				2				2048			
BLDISP	0900_CHANGE_NUMBER_MESSAG	8				5				2				2048			
BLDISP	0900_NONNUMERIC_MESSAGE	8				5				2				6272			
BLDISP	0900_TOP_OF_PAGE	4				2				1				3600			
BLDISP	0900_NON_CONUS_MESSAGE	8				5				2				2048			
BLDISP	0900_NON_CARGO_MESSAGE	8				5				2				2048			
CRQINT	0001_A_INITILIZE	2				1				1				0			
CRQINT	0001_SORT_INPUT_FILE	3				1				1				108			
CRQINT	0001_DRIVER	4				2				1				144			
CRQINT	0005_OPEN	6				3				1				54			
CRQINT	0005_RELEASE_INPUT_REC	9				2				1				20736			
CRQINT	0006_CARGO_PASS	14				3				2				896			
CRQINT	0010_SECTION_EXIT	1				1				1				0			
CRQINT	0100_DRIVER	11				3				1				2816			
CRQINT	0100_OPEN	5				2				1				20			
CRQINT	0100_NOPEN	2				1				1				0			
CRQINT	0100_READ	6				3				1				864			
CRQINT	0100_ICLOSE	3				1				1				0			
CRQINT	0200_SECOND_SORT	2				1				1				32			
CRQINT	0200_OPEN	5				1				1				180			
CRQINT	0200_WRITE_DETAILS	6				3				2				384			
CRQINT	205_PRINT_LINE_FORMAT	21				8				2				108864			
CRQINT	0200_CLOSE	2				1				1				0			
CRQINT	0500_PRINT_HEADER	3				2				1				48			
CRQINT	010_SECTION_EXIT	0				1				0				0			
NEWQUO	0001_MAIN_INIT	12				1				1				71148			
NEWQUO	0010_CHN_STORE	8				3				2				128			
NEWQUO	0011_CHN_END	2				1				1				32			
NEWQUO	0020_CARD_READ	10				3				2				4000			
NEWQUO	0021_CONUS_CHECK	24				4				2				194400			
NEWQUO	0060_INTRA	6				1				1				3750			
NEWQUO	0065_TABLE_STORE	2				2				2				0			
NEWQUO	0070_SORT_LOOP	18				10				6				0			
NEWQUO	0073_LOOP_TEST	4				2				2				16			
NEWQUO	0075_STORE	8				2				2				1800			
NEWQUO	0076_STORE	30				9				5				1323000			
NEWQUO	0080_QUOTA_STORE	2				1				1				8			

CRQS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Nest Level				Information Flow			
		Baseline	October	January	April	Baseline	October	January	April	Baseline	October	January	April	Baseline	October	January	April
NEWQUO	0081_QUOTA_LOOP	6				2				2				864			
NEWQUO	090_GETSEQ	17				4				2				100793			
NEWQUO	090_GETSEQ_EXIT	1				1				1				0			
NEWQUO	091_FIRST_FIELD	3				2				2				48			
NEWQUO	092_2ND_FIELD	3				2				2				48			
NEWQUO	093_3RD_FIELD	3				2				2				48			
NEWQUO	094_4TH_FIELD	3				2				2				48			
NEWQUO	095_OTHER_MOVES	9				2				2				28224			
NEWQUO	0100_PROCESS	11				1				1				85184			
NEWQUO	0105_REPEAT	9				1				1				1296			
NEWQUO	0106_REPEAT	8				1				1				4608			
NEWQUO	0108_DOUBLE_REPEAT	18				3				2				139392			
NEWQUO	0110_STOP	5				2				1				5			
NEWQUO	0501_BEGIN	2				2				2				0			
NEWQUO	0505_NEXT_SUB_CHN	9				3				2				5184			
NEWQUO	0505_CGO	40				5				4				20391840			
NEWQUO	0507_CHECK_AIR_FORCE	8				3				3				800			
NEWQUO	0508_END_SUB_CHN	2				1				1				0			
NEWQUO	0510_TOTAL	3				1				1				12			
NEWQUO	0510_LOOP	15				2				2				105840			
NEWQUO	0512_PRINT	5				1				1				80			
NEWQUO	0520_END	2				1				1				0			
NEWQUO	0600_LAST_CHAN	3				1				1				0			
NEWQUO	0610_EXIT	1				1				1				0			
NEWQUO	0530_BEGIN	5				2				2				45			
NEWQUO	0530_LOOP	11				2				2				43659			
NEWQUO	0532_PRINT	1				1				1				0			
NEWQUO	0533_CLEAR	2				1				1				0			
NEWQUO	0533_EXIT	1				1				1				0			
NEWQUO	0910_TOP_OF_PAGE	8				3				1				1152			
NEWQUO	0910_CONT	3				3				1				12			
NEWQUO	0911_EXIT	1				1				1				0			
NEWQUO	0920_PRINT_2	7				3				2				63			
NEWQUO	0921_EXIT	1				1				1				0			
NEWQUO	0940_BOT_OF_PAGE	3				2				1				48			
NEWQUO	0941_EXIT	1				1				1				0			
NEWQUO	0950_PRINT_1	7				3				2				63			
NEWQUO	0951_EXIT	1				1				1				0			
NEWQUO	9998_TOTSEC	8				2				2				1800			
NEWQUO	9998_START	10				2				2				2250			
NEWQUO	9998_CHECK_STN	7				3				2				448			
NEWQUO	9998_START_1	1				1				1				1			
NEWQUO	9998_SIFT	13				5				2				40768			
NEWQUO	9998_SIFT1	1				1				1				0			
NEWQUO	9998_PRT_INTRA	4				1				1				0			
NEWQUO	9998_TOTS	5				2				2				180			
NEWQUO	9998_END	10				4				2				4000			
NEWQUO	9998_GRAND_TOTAL	10				3				2				17640			
NEWQUO	9998_NEXT	5				2				2				45			
NEWQUO	9998_EXIT	1				1				1				0			
NEWQUO	9998_A_CHECK_FOR_NUMBERS	1				2				1				4			
NEWQUO	9998_A_EXIT	1				1				1				0			
NEWQUO	9998_B_CHECK_FOR_NUMBERS	4				3				2				100			
NEWQUO	9998_B_EXIT	0				1				0				0			
NEWQUO	9999_INPT1	17				8				4				3825			
NEWQUO	9999_EXIT1	1				1				1				0			
NEWQUO	9999_OUPT1	2				1				1				2			
NEWQUO	9999_OUPT2	5				1				1				20			
NEWQUO	9999_EXIT2	1				1				1				0			

CRQS Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Nest Level				Information Flow			
		Baseline	October	January	April	Baseline	October	January	April	Baseline	October	January	April	Baseline	October	January	April
CRQS_UP	000_INIT	47			48	10			10	4			4	33957500			36750000
CRQS_UP	010_INTRO	27			27	3			3	2			2	2430000			2430000
CRQS_UP	020_MENU	58			58	11			11	2			2	2509312			2509312
CRQS_UP	025_REPORT	11			11	3			3	1			1	6875			6875
CRQS_UP	030_ADD	21			21	4			4	1			1	1281189			1281189
CRQS_UP	030_EXIT	1			1	1			1	1			1	0			0
CRQS_UP	035_ADDITION	22			22	4			4	4			4	371800			371800
CRQS_UP	035A_REWRITE	7			7	1			1	1			1	7			7
CRQS_UP	036_CARGO_ADDS	30			30	5			5	2			2	768000			768000
CRQS_UP	038_CHECK_EXIST	8			8	9			9	5			5	288			288
CRQS_UP	040_DELETE	28			28	5			5	2			2	5347132			5347132
CRQS_UP	040_EXIT	1			1	1			1	1			1	0			0
CRQS_UP	041_DELETION	9			9	2			2	2			2	44100			44100
CRQS_UP	041A_REWRITE	7			7	1			1	1			1	7			7
CRQS_UP	050_UPDATE	41			41	7			7	3			3	15206121			15206121
CRQS_UP	050_EXIT	1			1	1			1	1			1	0			0
CRQS_UP	051_CHANGES	28			28	4			4	2			2	1211392			1211392
CRQS_UP	053_CARGO_CHANGES	27			27	7			7	2			2	1179387			1179387
CRQS_UP	057_NEW_VALUE	9			9	1			1	1			1	15876			15876
CRQS_UP	060_DISPLAY	21			21	3			3	1			1	435456			435456
CRQS_UP	060_RESET_ISP_FILE	2			2	1			1	1			1	0			0
CRQS_UP	060_EXIT	1			1	1			1	1			1	0			0
CRQS_UP	061_GETSEQ	10			10	5			5	3			3	20250			20250
CRQS_UP	061_EXIT	1			1	1			1	1			1	0			0
CRQS_UP	063_CARGO_MOVES	16			16	2			2	1			1	608400			608400
CRQS_UP	064_DISP_ON_SCREEN	17			17	1			1	1			1	100793			100793
CRQS_UP	065_TAPE	62			62	7			7	4			4	16252928			16252928
CRQS_UP	066_LOAD_TABLE	3			3	2			2	1			1	48			48
CRQS_UP	067_WRITE_CARD	2			2	2			2	1			1	8			8
CRQS_UP	069_FIND_IN_TABLE	6			6	2			2	2			2	864			864
CRQS_UP	070_CREATE_MONTH	66			66	7			7	4			4	46569600			46569600
CRQS_UP	075_LOAD_TABLE	3			3	2			2	1			1	48			48
CRQS_UP	076_FIND_NEW_MON	5			5	3			3	3			3	320			320
CRQS_UP	077_WRITE_PARAM	2			2	2			2	1			1	8			8
CRQS_UP	080_VALID_SERV	10			10	7			7	2			2	51840			51840
CRQS_UP	085_VALID_REQ	3			3	1			1	1			1	108			108
CRQS_UP	090_CHOOSE_TAPE	26			26	6			6	4			4	958464			958464
CRQS_UP	095_SEND_ADANS	9			9	2			2	1			1	5184			5184
CRQS_UP	100_READ_DISK	11			11	4			4	3			3	34496			34496
CRQS_UP	100_START	4			4	1			1	1			1	0			0
CRQS_UP	120_MOVE_WRITE	20			20	3			3	2			2	1132880			1132880
CRQS_UP	140_SEND_AMPS	28			28	3			3	2			2	444528			444528
CRQS_UP	140_SEND_AMPS_EXIT	1			1	1			1	1			1	0			0
CRQS_UP	900_GETRAN_MESS	10			10	1			1	1			1	64000			64000
CRQS_UP	901_DISPLAY_MESS	8			8	1			1	1			1	9800			9800
CRQS_UP	910_SERV_ERR	9			9	1			1	1			1	28224			28224
CRQS_UP	920_REQ_ERR	9			9	1			1	1			1	11025			11025
CRQS_UP	930_VALID_DATAB	13			13	2			2	2			2	316368			316368
CRQS_UP	940_TAPE_ERR	9			9	1			1	1			1	20736			20736
CRQS_UP	950_ACCESS_WORKFILES	21			21	1			1	1			1	287469			287469

Over Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Nest Level				Information Flow			
		Baseline	October	January	April	Baseline	October	January	April	Baseline	October	January	April	Baseline	October	January	April
YGOSWQ	000_INITIALIZE	11				3				1				2816			
YGOSWQ	010_START_PROCESSING	32				10				2				259200			
YGOSWQ	010_BYPASS_MESSAGE	21				10				2				42525			
YGOSWQ	010_CONTINUE	6				2				1				96			
YGOSWQ	020_STARS_CALL	54				9				3				6316056			
YGOSWQ	020_EXIT	1				1				0				0			
YGOSWQ	030_BUILD_HOLD_AREA	14				4				1				12600			
YGOSWQ	030_CONT	10				5				1				4000			
YGOSWQ	030_EXIT	1				1				0				0			
YGOSWQ	070_SEND_CT_MESSAGES	23				6				1				94208			
YGOSWQ	070_EXIT	1				1				0				0			
YGOSWQ	100_SEND_BCHDIN_BUFFER	19				2				1				55404			
YGOSWQ	100_EXIT	1				1				0				0			
YGOSWQ	200_SEND_PLAS	7				2				1				1008			
YGOSWQ	210_CONT	7				2				1				567			
YGOSWQ	220_SEND	12				2				1				21168			
YGOSWQ	230_EXIT	1				1				0				0			
YGOSWQ	410_SEND_CT_DATA	16				3				1				123904			
YGOSWQ	410_EXIT	1				1				0				0			
YGOSWQ	500_SEND_CLOSE_MESSAGE	11				2				1				26411			
YGOSWQ	500_EXIT	1				1				0				0			
YGOSWQ	600_SYSTEM_ID_CALL	21				2				1				254100			
YGOSWQ	600_EXIT	1				1				0				0			
YGOSWQ	800_RTOS_I_CALL	19				6				1				346275			
YGOSWQ	810_NULL_O_CALL	11				2				1				57024			
YGOSWQ	815_BOJ_CALL	11				2				1				32076			
YGOSWQ	910_EOO_CALL	16				3				1				30976			
YGOSWQ	1000_STOP_RUN	2				1				0				32			

Over Subsystem Raw Product Measures

Program Name	Paragraph (Procedure) Name	# of Stmts				McCabe's CC				Nest Level				Information Flow			
		Baseline	October	January	April	Baseline	October	January	April	Baseline	October	January	April	Baseline	October	January	April
YGOSWQ	000_INITIALIZE	11				3				1				2816			
YGOSWQ	010_START_PROCESSING	32				10				2				259200			
YGOSWQ	010_BYPASS_MESSAGE	21				10				2				42525			
YGOSWQ	010_CONTINUE	6				2				1				96			
YGOSWQ	020_STARS_CALL	54				9				3				6316056			
YGOSWQ	020_EXIT	1				1				0				0			
YGOSWQ	030_BUILD_HOLD_AREA	14				4				1				12600			
YGOSWQ	030_CONT	10				5				1				4000			
YGOSWQ	030_EXIT	1				1				0				0			
YGOSWQ	070_SEND_CT_MESSAGES	23				6				1				94208			
YGOSWQ	070_EXIT	1				1				0				0			
YGOSWQ	100_SEND_BCHDIN_BUFFER	19				2				1				55404			
YGOSWQ	100_EXIT	1				1				0				0			
YGOSWQ	200_SEND_PLAS	7				2				1				1008			
YGOSWQ	210_CONT	7				2				1				567			
YGOSWQ	220_SEND	12				2				1				21168			
YGOSWQ	230_EXIT	1				1				0				0			
YGOSWQ	410_SEND_CT_DATA	16				3				1				123904			
YGOSWQ	410_EXIT	1				1				0				0			
YGOSWQ	500_SEND_CLOSE_MESSAGE	11				2				1				26411			
YGOSWQ	500_EXIT	1				1				0				0			
YGOSWQ	600_SYSTEM_ID_CALL	21				2				1				254100			
YGOSWQ	600_EXIT	1				1				0				0			
YGOSWQ	800_RTOS_I_CALL	19				6				1				346275			
YGOSWQ	810_NULL_O_CALL	11				2				1				57024			
YGOSWQ	815_BOJ_CALL	11				2				1				32076			
YGOSWQ	910_EOO_CALL	16				3				1				30976			
YGOSWQ	1000_STOP_RUN	2				1				0				32			

Appendix C

Defect Data from AMC/CSS

HOST Defects by Release

Change Request by Release	Analysis P1	P2	P3	P4	P5	Sub-Total	Prelim Design P1	P2	P3	P4	P5	Sub-Total	Detail Design P1	P2	P3	P4	P5	Sub-Total	Coding P1	P2	P3	P4	P5	Sub-Total	Unit Test P1	P2	P3	P4	P5	Sub-Total	Formal Test P1	P2	P3	P4	P5	Sub-Total	Grand Total
October																																					
NXH-238						0						0						0						0						0				3		3	3
NXH-252						0						0						0						0						0	1			1		2	2
NXH-256						0						0						0						0						0				4		4	4
NXH-258						0						0						0						0						0	1					1	1
NXH-263						0						0						0						0						0				3		3	3
NXH-269						0						0						0						0						0				1		1	1
YG3-178						0						0						0						0						0						0	0
Sub-Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	12	0	14	14
January																																					
NXH-267			1			1						0				1		1						0						0						0	2
NXH-271						0				2		2			2			2			1			1						0						0	5
Formal Peer Reviews Begin																																					
YG3-165		2	2			4			3	2		5	3		5	4		12	1		1	1		3	1		2			3						0	27
YG5-135						0						0						0						0						0				1		1	1
Sub-Total	0	2	3	0	0	5	0	0	3	4	0	7	3	0	7	5	0	15	1	0	2	1	0	4	1	0	2	0	0	3	0	0	0	1	0	1	35
April																																					
NXH-274				2		2						0						0						0	1		1			2						0	4
CR1-20						0						0						0						0						0						0	0
YG1-207	2		2			4			1	1		2	2			6		8	4	4	4	6		18						0						0	32
YG1-208			1			1	1			1		2						0						0						0						0	3
YG3-163						0						0						0						0						0						0	0
YG3-179						0	2		1	1		4	1			1		2						0						0						0	6
Sub-Total	2	0	2	3	0	7	3	0	2	3	0	8	3	0	0	7	0	10	4	4	4	6	0	18	1	0	1	0	0	2	0	0	0	0	0	0	45
Grand Total	2	2	5	3	0	12	3	0	5	7	0	15	6	0	7	12	0	25	5	4	6	7	0	22	2	0	3	0	0	5	2	0	0	13	0	15	94

Process and Product Measures by Change Request and Program

Release	Subsystem	Change Number	Defects	File	* = New Program	Manhours	Total Procedures	Total Stmts	Largest Proc	Avg Stmts/proc	Total CC	Max CC	Avg CC	Max NL	Avg NL	Total IF	Max IF	Avg IF
Oct	T	NXH-252	2	NXR7WQ		8	5	36	9	7	12	4	2	2	2	12960	5832	2592
	T	NXH-256	4	NXICWQ		1	21	374	107	18	125	20	6	2	2	45827835	40336800	2182278
				NXIDWQ		4	39	435	45	11	183	19	5	2	2	32589413	21458944	814735
	T	NXH-269	1	NXMHWQ		27	29	624	92	22	184	13	6	3	2	378116858	248349308	13038512
	T	NXH-263	3	NXPMWQ		1	28	165	46	12	35	5	3	2	2	12545021	12105774	896073
				NXRGWQ		.1	33	383	40	12	146	12	4	3	2	9950499	5416960	301530
				NXPYWQ		1	16	326	91	20	102	16	6	3	2	690654368	685687275	43165898
				NXRPWQ		1	16	146	25	9	61	7	4	2	2	789107	608400	49319
				NXU1WQ		1	38	684	100	18	320	25	8	3	2	153777927	116208400	4046788
	T	NXH-238	3	NXD0WQ	*	8	4	12	5	3	7	3	2	1	1	1152	1125	288
				NXD1WQ	*	8	5	24	5	5	12	3	2	2	1	2626	1125	525
				NXD2WQ	*	8	7	52	10	7	21	4	3	2	2	41292	12960	5899
				NXD3WQ	*	8	5	25	6	5	12	3	2	2	1	3072	1350	614
				NXD4WQ	*	8	3	12	6	4	6	3	2	1	1	1530	1350	510
				NXD5WQ	*	8	3	12	6	4	6	3	2	1	1	1530	1350	510
				NXD7WQ	*	8	4	12	5	3	7	3	2	1	1	1152	1125	288
				NXIEWQ	*	175	15	220	38	15	81	19	5	2	2	46292137	30711638	3086142
	U	YG3-178	0	YG15WQ		1	16	519	87	32	195	51	12	3	2	54193695	43118592	3387106
				YGABWQ		5	18	306	56	17	80	11	4	4	2	113744450	99058400	6319136
				YGALWQ		10	33	669	73	21	206	21	6	4	2	365044311	177652800	11407635
				YGLFWQ		10	35	676	68	19	210	21	6	4	2	287908338	157313988	8225953
				YGOBWQ		5	19	532	156	28	211	83	11	3	2	2766801947	2751840000	145621155
				YGORWQ		5	21	303	50	14	100	12	5	4	2	2694783	1427712	128323
				YGPFWQ		5	10	171	71	17	61	32	6	2	2	5118565	3973888	511857
Jan	T	NXH-271	5	NXMBWQ		20	18	285	60	17	69	15	4	2	1	46975611	25947000	2763271
	T	NXH-259	3	NXIFWQ	*	66	12	116	32	10	47	11	4	2	2	15456570	15235200	1288048
	U	YG3-165	27	YGDRWQ		8	26	376	93	14	88	16	3	4	2	241613163	223432500	9292814
				YGCTWQ	*	250	25	287	73	11	69	21	3	5	2	10503955	9513433	420158
				YGUCWQ		10	24	493	159	21	140	42	6	5	2	1912992736	1887015975	79708031
Apr	M	YG1-211	0	YGDGWQ		2	4	33	18	8	8	3	2	2	2	285894	285768	71474
	M	YG1-206	1	YGRNWQ		50												
	M	YG1-208	3	YGRNWQ		8												
	M	YG1-209	1	YGRNWQ		8												
	M	YG1-207	32	YGRNWQ		30	23	286	38	14	160	24	8	6	3	11425515	5765892	544072
				YGADWQ		40	27	416	103	15	169	35	6	5	2	5288988	3276800	195888
				YGEDWQ		10	59	849	82	14	514	57	9	6	2	20791611	7364400	352400
				YGBTWQ		5	7	151	65	22	14	7	2	2	1	4396808	4394000	628115
				YGOTWQ		5	4	110	35	28	40	25	10	6	3	3164862	1819440	791216
	U	YG3-179	6	YGCTWQ		50	27	366	76	14	98	18	4	5	2	22431502	19305216	418019
	T	NXH-274	4	NXM1WQ		5	9	51	9	6	27	8	3	2	1	11300	4375	1256
				NXMPWQ		5	20	421	54	21	156	24	8	4	2	54997739	29292984	2749887

Product Measures by Changed Modules

File Name	* = New Programs	Module/Procedure Name	Pre-Stmts	Post-Stmts	Δ Stmts	Stmts Affected	Pre-McCabe	Post-McCabe	Δ McCabe	Pre-Nest Level	Post-Nest Level	Δ Nest Level	Pre-Info Flow	Post-Info Flow	Δ Info Flow
NXR7WQ		000_CLOSE	8	9	1	1	2	2	0	2	2	0	5832	8100	2268
		500_TCN_CHECK	9	10	1	1	4	4	0	2	2	0	2304	4000	1696
		TOTAL	17	19	2	2	6	6	0	4	4	0	8136	12100	3964
NXICWQ		100_HSKP	42	43	1	1	9	9	0	2	2	0	40336800	44299675	3962875
		700_SELECT_AND_MOVE	20	18	-2	4	20	19	-1	2	2	0	208080	145800	-62280
		TOTAL	62	61	-1	5	29	28	-1	4	4	0	40544880	44445475	3900595
NXIDWQ		110_SELECT	23	19	-4	4	6	6	0	2	2	0	1195632	109744	-1085888
		720_PROCESS	32	32	0	1	19	18	-1	2	2	0	4333568	3612672	-720896
		TOTAL	55	51	-4	5	25	24	-1	4	4	0	5529200	3722416	-1806784
NXMHWQ		000_CONTROL	15	16	1	2	2	2	0	2	2	0	24000	32400	8400
		131_SELECT_INPUT	27	30	3	3	13	14	1	2	2	0	456300	711480	255180
		420_AIR_TOTALS	92	117	25	25	13	17	4	2	2	0	248349308	635726637	387377329
		440_TRK_TOTALS	58	81	23	23	9	11	2	2	2	0	51795450	170772624	118977174
		TOTAL	192	244	52	53	37	44	7	8	8	0	300625058	807243141	506618083
NXPMWQ		211_ALLOCATE_YESTERDAY_FILE	5	11	6	6	5	8	3	2	2	0	3645	39600	35955
NXRGWQ		220_PROCESS	27	32	5	7	12	15	3	2	2	0	1179387	2230272	1050885
NXPYWQ		200_REFORMAT_INPUT_FILE	17	20	3	6	7	9	2	2	2	0	88128	162000	73872
NXRPWQ		131_ADDFIL_CALL	8	13	5	7	5	8	3	2	2	0	24200	83200	59000
NXU1WQ		210_ALLOCATE_AKF_FILE	19	29	10	10	11	14	3	2	2	0	134064	1160000	1025936
NXD0WQ	*	000_DRIVER		3				2			1			27	
	*	100_HSKP		1				1			1			0	
	*	200_READ		5				3			1			1125	
	*	300_WRAPUP		3				1			1			0	
	*	**TOTAL**		12				7			4			1152	
NXD1WQ	*	000_DRIVER		4				2			2			16	
	*	100_ONHD		5				2			1			180	
	*	110_READ		5				3			1			1125	
	*	200_MVMT		5				2			1			180	
	*	210_READ		5				3			1			1125	
	*	**TOTAL**		24				12			6			2626	
NXD2WQ	*	000_DRIVER		7				3			2			252	
	*	100_TC_ONHAND		5				2			1			720	
	*	110_READ_WRITE_LOOP		10				4			2			12960	
	*	200_TC_MOVEMENT		5				2			1			720	
	*	210_READ_WRITE_LOOP		10				4			2			12960	
	*	300_COMT		5				2			1			720	
	*	310_COMT_LOOP		10				4			2			12960	
	*	**TOTAL**		52				21			11			41292	
NXD3WQ	*	000_DRIVER		3				2			2			12	
	*	100_TC_COMMERCIAL		5				2			1			180	
	*	110_READ_WRITE_LOOP		6				3			1			1350	
	*	200_TC_MOVEMENT		5				2			1			180	
	*	210_READ_WRITE_LOOP		6				3			1			1350	
	*	**TOTAL**		25				12			6			3072	
NXD4WQ	*	000_DRIVER		1				1			1			0	
	*	100_TC_MOVEMENT		5				2			1			180	
	*	110_READ_WRITE_LOOP		6				3			1			1350	
	*	**TOTAL**		12				6			3			1530	
NXD5WQ	*	000_DRIVER		1				1			1			0	
	*	100_SUM		5				2			1			180	
	*	110_READ_WRITE_LOOP		6				3			1			1350	
	*	**TOTAL**		12				6			3			1530	
NXD7WQ	*	000_DRIVER		3				2			1			27	

Product Measures by Changed Modules

File Name	* = New Programs	Module/Procedure Name	Pre-Stmts	Post-Stmts	Δ Stmts	Stmts Affected	Pre-McCabe	Post-McCabe	Δ McCabe	Pre-Nest Level	Post-Nest Level	Δ Nest Level	Pre-Info Flow	Post-Info Flow	Δ Info Flow
	*	100_HSKP		1				1			1			0	
	*	200_READ		5				3			1			1125	
	*	300_WRAPUP		3				1			1			0	
	*	TOTAL		12				7			4			1152	
NXIEWQ	*	000_IE_DRIVER		7				3			2			448	
	*	100_HSKP		38				6			2			30711638	
	*	110_SELECT_RECORDS		38				19			2			5429592	
	*	200_REPORT_BUILDER		5				4			2			1125	
	*	210_NAF_LOOP		5				5			2			2205	
	*	211_APOE_LOOP		5				6			2			3645	
	*	212_APOE_TOTAL		11				2			2			14256	
	*	2111_APOD_LOOP		26				10			2			2402816	
	*	2112_APOD_TOTAL		20				4			2			288000	
	*	220_NAF_TOTAL		13				4			2			15925	
	*	300_WRAPUP		7				2			2			9072	
	*	700_HEADERS		10				7			2			12960	
	*	700_TRAILER		5				3			2			720	
	*	700_NEW_PAGE		7				4			2			5488	
	*	700_COMPUTE		23				2			2			7394247	
	*	TOTAL		220				81			30			46292137	
YG15WQ		1A_STARS_CALL	41	41	0	1	13	13	0	2	2	0	9446400	8865225	-581175
YGABWQ		000_DRIVER	32	33	1	7	8	10	2	2	2	0	5120000	8449188	3329188
		100_ABORT_MANIFEST	56	55	-1	1	10	10	0	2	2	0	99058400	91809520	-7248880
		300_ABORT_DETAIL	29	30	1	1	5	6	1	2	2	0	4827456	6768750	1941294
		1100_BUILD_STATUS_RECORD	17	10	-7	18	2	1	-1	2	1	-1	1332800	121000	-1211800
		TOTAL	134	128	-6	27	25	27	2	8	7	-1	110338656	107148458	-3190198
YGALWQ		000_DRIVER	69	69	0	2	21	21	0	3	3	0	171163125	178854900	7691775
		000_CONTINUE	5	21	16	16	2	4	2	2	3	1	1620	979776	978156
		100_LIFT_U	73	78	5	5	16	16	0	2	2	0	177652800	242437182	64784382
		400_LIFT_DETAIL	28	30	2	2	3	3	0	2	2	0	5976432	7620480	1644048
		860_PLT_BALANCE_CHECK	30	35	5	11	7	9	2	3	3	0	192000	283500	91500
		870_MANFST_BALANCE_CHECK	28	32	4	6	6	6	0	3	3	0	548800	720000	171200
		1110_CUBE_CONVER	35	36	1	1	21	22	1	2	2	0	126000	186624	60624
		1500_DELETE_ASIF_MANIFEST	18	39	21	23	2	7	5	2	4	2	778752	11372400	10593648
		TOTAL	286	340	54	66	78	88	10	19	22	3	356439529	442454862	86015333
YGLFWQ		000_DRIVER	51	56	5	5	17	19	2	3	3	0	86455404	118065024	31609620
		000_CONTINUE	21	20	-1	1	5	4	-1	3	3	0	734349	699380	-34969
		100_LIFT_U	68	66	-2	4	13	12	-1	2	2	0	157313988	137618976	-19695012
		860_PLT_BALANCE_CHECK	26	33	7	7	6	9	3	3	3	0	109850	211200	101350
		870_MANFST_BALANCE_CHECK	24	30	6	6	5	6	1	2	3	1	345600	588000	242400
		1110_CUBE_CONVERT	34	36	2	2	21	22	1	2	2	0	122400	186624	64224
		1500_BUILD_STATUS_RECORD	12	9	-3	13	2	1	-1	2	1	-1	264268	72900	-191368
		TOTAL	236	250	14	38	69	73	4	17	17	0	245345859	257442104	12096245
YGOBWQ		000_A_SEND_REPORT	34	32	-2	2	11	11	0	2	2	0	705024	663552	-41472
		030_PLT_BALANCE_CHECK	31	36	5	10	9	12	3	3	3	0	642816	1040400	397584
		TOTAL	65	68	3	12	20	23	3	5	5	0	1347840	1703952	356112
YGORWQ		515_FORMAT_CALL_RBTCHO	33	32	-1	1	7	7	0	2	2	0	1427712	1384448	-43264
		520_BD700_SEND_DRIVER	5	3	-2	2	3	2	-1	2	1	-1	320	48	-272
		TOTAL	38	35	-3	3	10	9	-1	4	3	-1	1428032	1384496	-43536
YGPFWQ		1_START_PROCESSING	43	43	0	1	9	9	0	2	2	0	3973888	4486147	512259
		4_DELETE_RECORD	6	17	11	11	2	4	2	2	4	2	3456	49572	46116
		TOTAL	49	60	11	12	11	13	2	4	6	2	3977344	4535719	558375
NXMBWQ		000_MB_DRIVER	13	15	2	2	7	8	1	2	2	0	4212	11760	7548

Product Measures by Changed Modules

File Name	* = New Programs	Module/Procedure Name	Pre-Stmts	Post-Stmts	Δ Stmts	Stmts Affected	Pre-McCabe	Post-McCabe	Δ McCabe	Pre-Nest Level	Post-Nest Level	Δ Nest Level	Pre-Info Flow	Post-Info Flow	Δ Info Flow
		100_HSKP	24	25	1	1	3	4	1	1	2	1	9255384	11390625	2135241
		110_SELECT_INPUT	6	8	2	2	3	5	2	1	2	1	486	1152	666
		200_BUILD_REPORT	19	22	3	3	6	8	2	2	2	0	112651	301158	188507
		210_TOTALS_TABLE_SEARCH	6	7	1	1	4	5	1	1	2	1	1350	2268	918
		220_UPDATE_TABLE	60	61	1	1	10	11	1	2	2	0	150000	184525	34525
		230_FORMAT_DETAIL_LINE	23	24	1	1	1	2	1	1	2	1	5888828	6690816	801988
		300_WRAP_UP	9	10	1	1	2	3	1	1	2	1	9216	16000	6784
		310_UNLOAD_TABLE	13	14	1	1	2	3	1	1	2	1	29952	50400	20448
		320_PORT_RECAP_PROCESS	10	11	1	1	2	3	1	1	2	1	7290	14256	6966
		321_READ_SORTED_TABLE	10	11	1	1	3	4	1	2	2	0	4000	6875	2875
		TOTAL	193	208	15	15	43	56	13	15	22	7	15463369	18669835	3206466
NXIFWQ	*	000_IF_DRIVER		6				3			2			384	
	*	100_HOUSEKEEPING		32				7			2			15235200	
	*	110_SELECT_HISTORY_RECORDS		16				11			2			69696	
	*	200_REPORT_BUILDER		7				6			2			12348	
	*	210_CALC_DTL_WEIGHTS_SHIPMENTS		3				1			1			108	
	*	220_DETAIL_PROCESS		11				1			1			65219	
	*	230_TOTAL_PROCESS		9				2			1			14400	
	*	300_WRAPUP		10				2			2			49000	
	*	700_NEW_PAGE		7				4			2			2800	
	*	700_HEADERS		8				5			2			6272	
	*	700_TRAILER		5				3			2			1125	
	*	700_READ_SORTED_FILE_GFRC		2				2			1			18	
	*	TOTAL		116				47			20			15456570	
YGDRWQ		2_PROCESS	45	49	4	4	11	11	0	3	3	0	12545280	17640000	5094720
		3_WRAP_UP	4	2	-2	2	1	1	0	1	1	0	324	18	-306
		20_DGDH_SPAWNED	15	14	-1	1	1	1	0	1	1	0	6000	5600	-400
		TOTAL	64	65	1	7	13	13	0	5	5	0	12551604	17645618	5094014
YGCTWQ	*	00000_BEGIN		28				5			4		252700		
	*	10000_END_OF_DAY_PROCESS		14				2			2		89600		
	*	20000_READ_SYS_ID_FILE		16				5			3		129600		
	*	21000_LOAD_TRANS_TABLE		5				2			1		6480		
	*	21100_LOAD_SYSID_DATA		1				1			1		9		
	*	30000_FIND_PORT		15				3			3		10935		
	*	40000_ADD		76				22			3		19305216		
	*	41000_SEND_MESSAGE		28				5			3		444528		
	*	42000_CHANGE_SYSTEM_STATUS		19				6			5		75411		
	*	42100_SET_SYSTEM_STATUS		15				3			3		18375		
	*	42110_SET_CHANGE_DATE		4				1			1		4096		
	*	42120_CALL_15		5				2			2		980		
	*	50000_STORE_TO_SYS_ID		8				3			1		7200		
	*	51000_READ_SYS_ID_FILE_AGAIN		14				8			3		50400		
	*	51100_SEARCH_TRANS_TABLE		3				2			2		192		
	*	51110_STORE_DATA		8				3			2		7200		
	*	51111_STORE_TRANS_INFO		1				1			1		16		
	*	51200_REPLACE_RECORD		9				2			2		3600		
	*	60000_PROCESS_TRANS_RPT		10				4			1		39690		
	*	61000_BUILD_AND_SEND		29				7			3		1841616		
	*	61100_SET_HEADERS		4				2			2		400		
	*	61200_BUILD_DRIVER		5				2			1		8820		
	*	61210_ACCESS_2ND_DEMENSION		1				1			1		16		
	*	61300_SEND_TRANS_RPT		22				3			3		130438		
	*	61400_SEARCH_PORT_TABLE		6				3			3		384		

Product Measures by Changed Modules

File Name	* = New Programs	Module/Procedure Name	Pre-Stmts	Post-Stmts	Δ Stmts	Stmts Affected	Pre-McCabe	Post-McCabe	Δ McCabe	Pre-Nest Level	Post-Nest Level	Δ Nest Level	Pre-Info Flow	Post-Info Flow	Δ Info Flow
	*	70000_RZLT_CHECK		9				2			2		3600		
	*	80000_FALL_THRU		1				1			1		0		
	*	TOTAL		356				101			59		22431502		
YGUCWQ		320_I_CALL	159	163	4	4	42	43	1	5	5	0	1887015975	2070441648	183425673
		1400_CONTROL_RECORD	13	15	2	2	3	3	0	3	3	0	67392	181500	114108
		TOTAL	172	178	6	6	45	46	1	8	8	0	1887083367	2070623148	183539781
YGDGWQ		300_ADD	6	6	0	2	2	2	0	2	2	0	96	96	0
YGRNWQ		000_START	33	41	8	8	7	10	3	4	5	1	1597200	4628736	3031536
		100_BUILD_ADVANCE	33	40	7	7	8	11	3	2	2	0	5765892	11924640	6158748
		100_ADD_ADVANCE	12	22	10	10	4	8	4	3	3	0	10800	95832	85032
		200_NO_HIT	38	58	20	20	11	18	7	3	3	0	3558168	12272800	8714632
		300_UPDATE_ADVANCE	14	17	3	3	3	4	1	2	2	0	201600	347633	146033
		910_PROJ_CODE_CHK		3				3			2			12	
		920_CODE_J_CHK		4				6			2			784	
		TOTAL	130	185	48	48	33	60	18	14	19	1	11133660	29270437	18135981
YGADWQ		000_INITIALIZE	1	4	3	3	1	2	1	1	2	1	0	16	16
		010_DRIVER_PARA	23	34	11	11	20	24	4	5	5	0	178112	827424	649312
		105_GET_PRIME	32	44	12	12	5	8	3	2	3	1	3276800	6353600	3076800
		200_ADD_DETAIL	13	21	8	12	1	5	4	1	2	1	206388	873936	667548
		210_ADD	23	27	4	4	4	6	2	2	3	1	517500	1190700	673200
		310_GET_DETAIL	27	39	12	12	4	7	3	2	3	1	395307	797511	402204
		TOTAL	119	169	50	54	35	52	17	13	18	5	4574107	10043187	5469080
YGEDWQ		120_EXIT	19	19	0	1	22	21	-1	3	3	0	17100	17100	0
		220_EDIT_PRI	26	30	4	18	57	52	-5	6	2	-4	14976	9720	-5256
		300_LIST_ERRORS	6	12	6	6	2	4	2	2	3	1	486	5292	4806
		301_DEFAULT_MSG	16	24	8	8	2	4	2	2	2	0	230400	470400	240000
		303_WRITE	7	15	8	8	1	3	2	1	2	1	1008	8640	7632
		305_MOVES	60	76	16	16	9	13	4	3	3	0	3810240	6569136	2758896
		900_FILL_TABLE	10	16	6	6	2	4	2	2	4	2	4199040	7683984	3484944
		1100_VALID_COUNTERS	82	83	1	1	28	29	1	3	3	0	1845000	2689200	844200
		TOTAL	226	275	49	64	123	130	7	22	22	0	10118250	17453472	7335222
YGBTWQ		003_COUNTERS	45	46	1	1	1	1	0	1	1	0	0	0	0
YGOTWQ		100_SEND	24	25	1	1	25	25	0	6	6	0	7776	14400	6624
YGCTWQ		00000_BEGIN	28	39	11	13	5	6	1	4	5	1	252700	351975	99275
		40000_ADD	76	68	-8	12	22	18	-4	3	2	-1	19305216	7953552	-11351664
		61100_SET_HEADERS	4	11	7	7	2	2	0	2	2	0	400	107811	107411
		TOTAL	108	118	10	32	29	26	-3	9	9	0	19558316	8413338	-11144978
NXM1WQ		000_DRIVER	5	7	2	2	2	3	1	1	2	1	80	700	620
		100_HOUSEKEEPING	6	7	1	1	2	3	1	1	2	1	3456	5488	2032
		110_LOAD_ADAM_III_CONUS	9	10	1	1	3	4	1	2	2	0	2025	3240	1215
		200_PROCESS_LB	7	8	1	1	8	9	1	2	2	0	4375	7200	2825
		300_AKF_SETTER	8	9	1	1	3	4	1	1	2	1	648	1296	648
		400_WRAPUP	2	3	1	1	1	2	1	1	2	1	0	0	0
		700_READ_LB_MOVEMENT	4	5	1	1	2	3	1	1	2	1	36	80	44
		700_LB_READ_WRITE	5	8	3	3	3	5	2	1	2	1	180	800	620
		700_CHECK_ADAM_III_CONUS	5	6	1	1	3	4	1	1	2	1	500	864	364
		TOTAL	51	63	12	12	27	37	10	11	18	7	11300	19668	8368
NXMPWQ		000_MP_DRIVER	7	9	2	2	2	3	1	2	2	0	112	900	788
		100_HSKP	46	48	2	2	9	11	2	1	2	1	29292984	32039472	2746488
		110_PZ4_ORIGINATING	26	27	1	1	16	17	1	2	2	0	531674	640332	108658
		120_PZ4_TERMINATING	26	27	1	1	14	15	1	2	2	0	380666	470448	89782
		120_CONTINUE	24	27	3	3	8	10	2	2	2	0	2217984	3158028	940044
		130_PZ3_OLD_MONTH	38	41	3	3	21	23	2	3	3	0	2318342	2771600	453258

Product Measures by Changed Modules

File Name	* = New Programs	Module/Procedure Name	Pre-Stmts	Post-Stmts	Δ Stmts	Stmts Affected	Pre-McCabe	Post-McCabe	Δ McCabe	Pre-Nest Level	Post-Nest Level	Δ Nest Level	Pre-Info Flow	Post-Info Flow	Δ Info Flow
		200_CREATE_FILE_DRIVER	5	6	1	1	2	3	1	1	2	1	1620	2646	1026
		210_CREATE_MINI_FILE	18	19	1	1	17	18	1	4	4	0	127008	157339	30331
		211_ORIG_FOR_MINI_REC	31	34	3	3	24	27	3	2	2	0	1290096	1586304	296208
		212_COMPUTE_PHTS	54	55	1	1	7	8	1	2	2	0	15283296	17248000	1964704
		300_WRAPUP	45	46	1	1	1	2	1	1	2	1	0	0	0
		700_READ	6	7	1	1	2	3	1	1	2	1	216	448	232
		700_ADAM_III_CHECK	5	6	1	1	3	4	1	1	2	1	980	1536	556
		700_COMPUTE_HOURS	16	17	1	1	6	7	1	2	2	0	186624	220932	34308
		700_WRITE_OVER_10_DAY	8	9	1	1	2	3	1	1	2	1	14112	21609	7497
		700_READ_MOVE	13	15	2	2	13	15	2	7	9	2	25168	34560	9392
		700_ERROR_RTN	4	5	1	1	1	2	1	1	2	1	196	320	124
		TOTAL	372	398	26	26	148	171	23	35	44	9	51671078	58354474	6683396
NXRPWQ		000_DRIVER	8	11	3	3	3	5	2	2	2	0	4608	13475	8867
		100_HSKP	25	27	2	2	7	9	2	2	2	0	608400	762048	153648
		110_VALIDATE_REPORT_CODE	14	16	2	2	6	8	2	2	2	0	14336	20736	6400
		130_INITIALIZE_REPORT_FILE	18	19	1	1	6	7	1	2	2	0	16200	23275	7075
		131_ADDFIL_CALL	13	14	1	1	8	9	1	2	2	0	83200	101150	17950
		200_PROCESS_REPORT_FILE	7	8	1	1	4	5	1	1	2	1	2800	4608	1808
		200_SEARCH_AT_END	3	4	1	1	4	5	1	1	2	1	300	576	276
		200_SEARCH_WHEN_1	2	3	1	1	2	3	1	1	2	1	8	27	19
		200_SEARCH_WHEN_2	4	5	1	1	4	5	1	1	2	1	900	1620	720
		210_WRITE_AND_READ_NEXT	7	9	2	2	3	5	2	2	2	0	2268	3969	1701
		220_SKIP_THIS_STATION	4	6	2	2	2	4	2	1	2	1	36	96	60
		300_CLOSE	11	13	2	2	5	7	2	2	2	0	70400	93925	23525
		310_DISPLAY	8	9	1	1	2	3	1	2	2	0	512	900	388
		700_ADDFIL_ERROR_CHECK	11	12	1	1	3	4	1	2	2	0	33275	43200	9925
		700_READ_REQUEST_FILE	4	6	2	2	2	4	2	1	2	1	64	150	86
		TOTAL	139	162	23	23	61	83	22	24	30	6	837307	1069755	232448

Changes in Raw Product Measures by Module

File	Module/Procedure	Δ Stmts	Affected Stmts	Δ McCabe	Δ Nest Level	Δ Info Flow
NXR7WQ	000_CLOSE	1	1	0	0	2268
	500_TCN_CHECK	1	1	0	0	1696
NXICWQ	100_HSKP	1	1	0	0	3962875
	700_SELECT_AND_MOVE	-2	4	-1	0	-62280
NXIDWQ	110_SELECT	-4	4	0	0	-1085888
	720_PROCESS	0	1	-1	0	-720896
NXMHWQ	000_CONTROL	1	2	0	0	8400
	131_SELECT_INPUT	3	3	1	0	255180
	420_AIR_TOTALS	25	25	4	0	387377329
	440_TRK_TOTALS	23	23	2	0	118977174
NXPMWQ	211_ALLOCATE_YESTERDAY_FILE	6	6	3	0	35955
NXRGWQ	220_PROCESS	5	7	3	0	1050885
NXPYWQ	200_REFORMAT_INPUT_FILE	3	6	2	0	73872
NXRPWQ	131_ADDFIL_CALL	5	7	3	0	59000
NXU1WQ	210_ALLOCATE_AKF_FILE	10	10	3	0	1025936
NXD0WQ	000_DRIVER	3	3	2	1	27
	100_HSKP	1	1	1	1	0
	200_READ	5	5	3	1	1125
	300_WRAPUP	3	3	1	1	0
NXD1WQ	000_DRIVER	4	4	2	2	16
	100_ONHD	5	5	2	1	180
	110_READ	5	5	3	1	1125
	200_MVMT	5	5	2	1	180
	210_READ	5	5	3	1	1125
NXD2WQ	000_DRIVER	7	7	3	2	252
	100_TC_ONHAND	5	5	2	1	720
	110_READ_WRITE_LOOP	10	10	4	2	12960
	200_TC_MOVEMENT	5	5	2	1	720
	210_READ_WRITE_LOOP	10	10	4	2	12960
	300_COMT	5	5	2	1	720
	310_COMT_LOOP	10	10	4	2	12960
NXD3WQ	000_DRIVER	3	3	2	2	12
	100_TC_COMMERCIAL	5	5	2	1	180
	110_READ_WRITE_LOOP	6	6	3	1	1350
	200_TC_MOVEMENT	5	5	2	1	180
	210_READ_WRITE_LOOP	6	6	3	1	1350
NXD4WQ	000_DRIVER	1	1	1	1	0
	100_TC_MOVEMENT	5	5	2	1	180
	110_READ_WRITE_LOOP	6	6	3	1	1350
NXD5WQ	000_DRIVER	1	1	1	1	0
	100_SUM	5	5	2	1	180

Changes in Raw Product Measures by Module

File	Module/Procedure	Δ Stmts	Affected Stmts	Δ McCabe	Δ Nest Level	Δ Info Flow
	110_READ_WRITE_LOOP	6	6	3	1	1350
NXD7WQ	000_DRIVER	3	3	2	1	27
	100_HSKP	1	1	1	1	0
	200_READ	5	5	3	1	1125
	300_WRAPUP	3	3	1	1	0
NXIEWQ	000_IE_DRIVER	7	7	3	2	448
	100_HSKP	38	38	6	2	30711638
	110_SELECT_RECORDS	38	38	19	2	5429592
	200_REPORT_BUILDER	5	5	4	2	1125
	210_NAF_LOOP	5	5	5	2	2205
	211_APOE_LOOP	5	5	6	2	3645
	212_APOE_TOTAL	11	11	2	2	14256
	2111_APOD_LOOP	26	26	10	2	2402816
	2112_APOD_TOTAL	20	20	4	2	288000
	220_NAF_TOTAL	13	13	4	2	15925
	300_WRAPUP	7	7	2	2	9072
	700_HEADERS	10	10	7	2	12960
	700_TRAILER	5	5	3	2	720
	700_NEW_PAGE	7	7	4	2	5488
	700_COMPUTE	23	23	2	2	7394247
YG15WQ	1A_STARS_CALL	0	1	0	0	-581175
YGABWQ	000_DRIVER	1	7	2	0	3329188
	100_ABORT_MANIFEST	-1	1	0	0	-7248880
	300_ABORT_DETAIL	1	1	1	0	1941294
	1100_BUILD_STATUS_RECORD	-7	18	-1	-1	-1211800
YGALWQ	000_DRIVER	0	2	0	0	7691775
	000_CONTINUE	16	16	2	1	978156
	100_LIFT_U	5	5	0	0	64784382
	400_LIFT_DETAIL	2	2	0	0	1644048
	860_PLT_BALANCE_CHECK	5	11	2	0	91500
	870_MANFST_BALANCE_CHECK	4	6	0	0	171200
	1110_CUBE_CONVER	1	1	1	0	60624
	1500_DELETE_ASIF_MANIFEST	21	23	5	2	10593648
YGLFWQ	000_DRIVER	5	5	2	0	31609620
	000_CONTINUE	-1	1	-1	0	-34969
	100_LIFT_U	-2	4	-1	0	-19695012
	860_PLT_BALANCE_CHECK	7	7	3	0	101350
	870_MANFST_BALANCE_CHECK	6	6	1	1	242400
	1110_CUBE_CONVERT	2	2	1	0	64224
	1500_BUILD_STATUS_RECORD	-3	13	-1	-1	-191368
YGOBWQ	000_A_SEND_REPORT	-2	2	0	0	-41472

Changes in Raw Product Measures by Module

File	Module/Procedure	Δ Stmts	Affected Stmts	Δ McCabe	Δ Nest Level	Δ Info Flow
	030_PLT_BALANCE_CHECK	5	10	3	0	397584
YGORWQ	515_FORMAT_CALL_RBTCHO	-1	1	0	0	-43264
	520_BD700_SEND_DRIVER	-2	2	-1	-1	-272
YGPFWQ	1_START_PROCESSING	0	1	0	0	512259
	4_DELETE_RECORD	11	11	2	2	46116
NXMBWQ	000_MB_DRIVER	2	2	1	0	7548
	100_HSKP	1	1	1	1	2135241
	110_SELECT_INPUT	2	2	2	1	666
	200_BUILD_REPORT	3	3	2	0	188507
	210_TOTALS_TABLE_SEARCH	1	1	1	1	918
	220_UPDATE_TABLE	1	1	1	0	34525
	230_FORMAT_DETAIL_LINE	1	1	1	1	801988
	300_WRAP_UP	1	1	1	1	6784
	310_UNLOAD_TABLE	1	1	1	1	20448
	320_PORT_RECAP_PROCESS	1	1	1	1	6966
	321_READ_SORTED_TABLE	1	1	1	0	2875
NXIFWQ	000_IF_DRIVER	6	6	3	2	384
	100_HOUSEKEEPING	32	32	7	2	15235200
	110_SELECT_HISTORY_RECORDS	16	16	11	2	69696
	200_REPORT_BUILDER	7	7	6	2	12348
	210_CALC_DTL_WEIGHTS_SHIPMENTS	3	3	1	1	108
	220_DETAIL_PROCESS	11	11	1	1	65219
	230_TOTAL_PROCESS	9	9	2	1	14400
	300_WRAPUP	10	10	2	2	49000
	700_NEW_PAGE	7	7	4	2	2800
	700_HEADERS	8	8	5	2	6272
	700_TRAILER	5	5	3	2	1125
	700_READ_SORTED_FILE_GFRC	2	2	2	1	18
YGDRWQ	2_PROCESS	4	4	0	0	5094720
	3_WRAP_UP	-2	2	0	0	-306
	20_DGDH_SPAWNED	-1	1	0	0	-400
YGCTWQ	00000_BEGIN	28	28	5	4	252700
	10000_END_OF_DAY_PROCESS	14	14	2	2	89600
	20000_READ_SYS_ID_FILE	16	16	5	3	129600
	21000_LOAD_TRANS_TABLE	5	5	2	1	6480
	21100_LOAD_SYSID_DATA	1	1	1	1	9
	30000_FIND_PORT	15	15	3	3	10935
	40000_ADD	76	76	22	3	19305216
	41000_SEND_MESSAGE	28	28	5	3	444528
	42000_CHANGE_SYSTEM_STATUS	19	19	6	5	75411
	42100_SET_SYSTEM_STATUS	15	15	3	3	18375

Changes in Raw Product Measures by Module

File	Module/Procedure	Δ Stmts	Affected Stmts	Δ McCabe	Δ Nest Level	Δ Info Flow
	42110_SET_CHANGE_DATE	4	4	1	1	4096
	42120_CALL_15	5	5	2	2	980
	50000_STORE_TO_SYS_ID	8	8	3	1	7200
	51000_READ_SYS_ID_FILE_AGAIN	14	14	8	3	50400
	51100_SEARCH_TRANS_TABLE	3	3	2	2	192
	51110_STORE_DATA	8	8	3	2	7200
	51111_STORE_TRANS_INFO	1	1	1	1	16
	51200_REPLACE_RECORD	9	9	2	2	3600
	60000_PROCESS_TRANS_RPT	10	10	4	1	39690
	61000_BUILD_AND_SEND	29	29	7	3	1841616
	61100_SET_HEADERS	4	4	2	2	400
	61200_BUILD_DRIVER	5	5	2	1	8820
	61210_ACCESS_2ND_DEMENSION	1	1	1	1	16
	61300_SEND_TRANS_RPT	22	22	3	3	130438
	61400_SEARCH_PORT_TABLE	6	6	3	3	384
	70000_RZLT_CHECK	9	9	2	2	3600
	80000_FALL_THRU	1	1	1	1	0
YGUCWQ	320_I_CALL	4	4	1	0	183425673
	1400_CONTROL_RECORD	2	2	0	0	114108
YGDGWQ	300_ADD	0	2	0	0	0
YGRNWQ	000_START	8	8	3	1	3031536
	100_BUILD_ADVANCE	7	7	3	0	6158748
	100_ADD_ADVANCE	10	10	4	0	85032
	200_NO_HIT	20	20	7	0	8714632
	300_UPDATE_ADVANCE	3	3	1	0	146033
	910_PROJ_CODE_CHK	3	3	3	2	12
	920_CODE_J_CHK	4	4	6	2	784
YGADWQ	000_INITIALIZE	3	3	1	1	16
	010_DRIVER_PARA	11	11	4	0	649312
	105_GET_PRIME	12	12	3	1	3076800
	200_ADD_DETAIL	8	12	4	1	667548
	210_ADD	4	4	2	1	673200
	310_GET_DETAIL	12	12	3	1	402204
YGEDWQ	120_EXIT	0	1	-1	0	0
	220_EDIT_PRI	4	18	-5	-4	-5256
	300_LIST_ERRORS	6	6	2	1	4806
	301_DEFAULT_MSG	8	8	2	0	240000
	303_WRITE	8	8	2	1	7632
	305_MOVES	16	16	4	0	2758896
	900_FILL_TABLE	6	6	2	2	3484944
	1100_VALID_COUNTERS	1	1	1	0	844200

Changes in Raw Product Measures by Module

File	Module/Procedure	Δ Stmts	Affected Stmts	Δ McCabe	Δ Nest Level	Δ Info Flow
YGBTWQ	003_COUNTERS	1	1	0	0	0
YGOTWQ	100_SEND	1	1	0	0	6624
YGCTWQ	00000_BEGIN	11	13	1	1	99275
	40000_ADD	-8	12	-4	-1	-11351664
	61100_SET_HEADERS	7	7	0	0	107411
NXM1WQ	000_DRIVER	2	2	1	1	620
	100_HOUSEKEEPING	1	1	1	1	2032
	110_LOAD_ADAM_III_CONUS	1	1	1	0	1215
	200_PROCESS_LB	1	1	1	0	2825
	300_AKF_SETTER	1	1	1	1	648
	400_WRAPUP	1	1	1	1	0
	700_READ_LB_MOVEMENT	1	1	1	1	44
	700_LB_READ_WRITE	3	3	2	1	620
	700_CHECK_ADAM_III_CONUS	1	1	1	1	364
NXMPWQ	000_MP_DRIVER	2	2	1	0	788
	100_HSKP	2	2	2	1	2746488
	110_PZ4_ORIGINATING	1	1	1	0	108658
	120_PZ4_TERMINATING	1	1	1	0	89782
	120_CONTINUE	3	3	2	0	940044
	130_PZ3_OLD_MONTH	3	3	2	0	453258
	200_CREATE_FILE_DRIVER	1	1	1	1	1026
	210_CREATE_MINI_FILE	1	1	1	0	30331
	211_ORIG_FOR_MINI_REC	3	3	3	0	296208
	212_COMPUTE_PHTS	1	1	1	0	1964704
	300_WRAPUP	1	1	1	1	0
	700_READ	1	1	1	1	232
	700_ADAM_III_CHECK	1	1	1	1	556
	700_COMPUTE_HOURS	1	1	1	0	34308
	700_WRITE_OVER_10_DAY	1	1	1	1	7497
	700_READ_MOVE	2	2	2	2	9392
	700_ERROR_RTN	1	1	1	1	124
NXRPWQ	000_DRIVER	3	3	2	0	8867
	100_HSKP	2	2	2	0	153648
	110_VALIDATE_REPORT_CODE	2	2	2	0	6400
	130_INITIALIZE_REPORT_FILE	1	1	1	0	7075
	131_ADDFIL_CALL	1	1	1	0	17950
	200_PROCESS_REPORT_FILE	1	1	1	1	1808
	200_SEARCH_AT_END	1	1	1	1	276
	200_SEARCH_WHEN_1	1	1	1	1	19
	200_SEARCH_WHEN_2	1	1	1	1	720
	210_WRITE_AND_READ_NEXT	2	2	2	0	1701

Changes in Raw Product Measures by Module

File	Module/Procedure	Δ Stmts	Affected Stmts	Δ McCabe	Δ Nest Level	Δ Info Flow
	220_SKIP_THIS_STATION	2	2	2	1	60
	300_CLOSE	2	2	2	0	23525
	310_DISPLAY	1	1	1	0	388
	700_ADDFIL_ERROR_CHECK	1	1	1	0	9925
	700_READ_REQUEST_FILE	2	2	2	1	86

Raw Product Measures for New and Changed Code by Program

Program Name	Manhours	Affected Statements	Pre-Number of Statements	Post-Number of Statements	Pre-Cyclomatic Complexity	Post-Cyclomatic Complexity	Pre-Information Flow	Post-Information Flow
Changed Code								
NXR7WQ	8	2	36	38	12	12	12960	16924
NXICWQ	1	5	374	373	125	124	45827835	49728430
NXIDWQ	4	5	435	431	183	182	32589413	30782629
NXMHWQ	27	53	624	676	184	191	378116858	884734941
NXPMWQ	1	6	165	171	35	38	12545021	12580976
NXRGWQ	1	7	383	388	146	149	9950499	11001384
NXPYWQ	1	6	326	329	102	104	690654368	690728240
NXRPWQ	1	7	146	151	61	64	789107	848107
NXU1WQ	1	10	684	694	320	323	153777927	154803863
YG15WQ	1	1	519	519	195	195	54193695	53612520
YGABWQ	5	27	306	300	80	82	113744450	110554252
YGALWQ	10	66	669	723	206	216	365044311	451059644
YGLFWQ	10	38	676	690	210	214	287908338	300004583
YGOBWQ	5	12	532	535	211	214	2767000000	2767000000
YGORWQ	5	3	303	300	100	99	2694783	2651247
YGPFWQ	5	12	171	182	61	63	5118565	5676940
NXMBWQ	20	15	285	300	69	82	46975611	50182077
YGDRWQ	8	7	376	377	88	88	241613163	246707177
YGCTWQ	250	356	287	643	69	170	10503955	32935457
YGUCWQ	10	6	493	499	140	141	1913000000	2097000000
YGDGWQ	2	2	33	33	8	8	285894	285894
YGRNWQ	96	48	286	341	160	187	11425515	29562292
YGADWQ	40	54	416	466	169	186	5288988	10758068
YGEDWQ	10	64	849	898	514	521	20791611	28126833
YGBTWQ	5	1	151	152	14	14	4396808	4396808
YGOTWQ	5	1	110	111	40	40	3164862	3171486
NXM1WQ	5	12	51	63	27	37	11300	19668
NXMPWQ	5	26	421	447	156	179	54997739	61681135
New Code								
NXD0WQ	8	12		12		7		1152
NXD1WQ	8	24		24		12		2626
NXD2WQ	8	52		52		21		41292
NXD3WQ	8	25		25		12		3072

Raw Product Measures for New and Changed Code by Program

Program Name	Manhours	Affected Statements	Pre-Number of Statements	Post-Number of Statements	Pre-Cyclomatic Complexity	Post-Cyclomatic Complexity	Pre-Information Flow	Post-Information Flow
NXD4WQ	8	12		12		6		1530
NXD5WQ	8	12		12		6		1530
NXD7WQ	8	12		12		7		1152
NXIEWQ	175	220		220		81		46292137
YGCTWQ	50	356		356		101		22431502
NXIFWQ	66	116		116		47		15456570

Appendix H

Scatter Plots of Compared Measures

List of Figures

Initial Manhour Data

Manhours vs. Post Cyclomatic Complexity

Figure H-1. Manhours vs. Post-Cyclomatic Complexity

Manhours vs. Post Information Flow
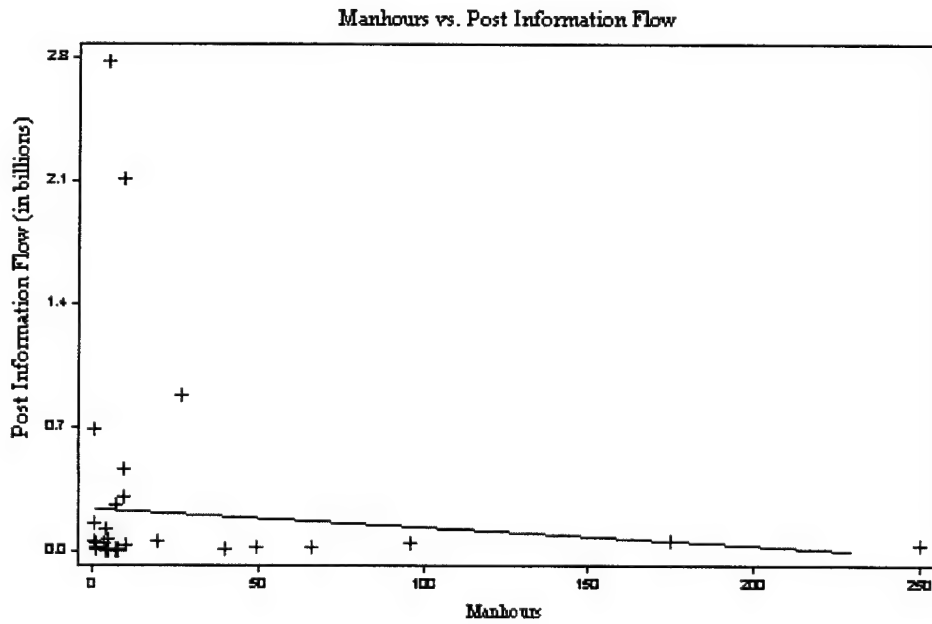
Figure H-2. Manhours vs. Post-Information Flow
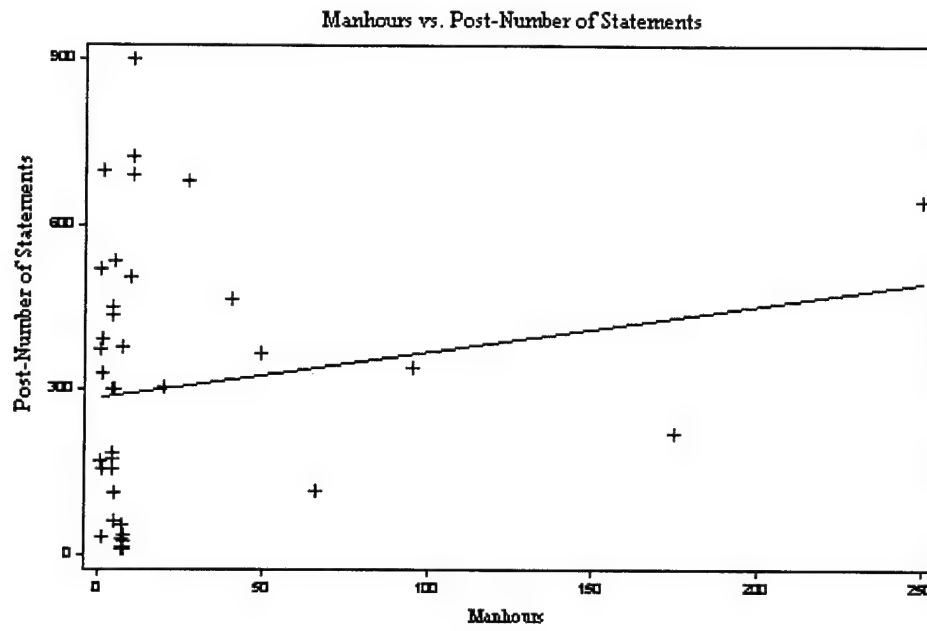
Figure H-3. Manhours vs. Post-Number of Statements

Manhour Data (Changed Code)
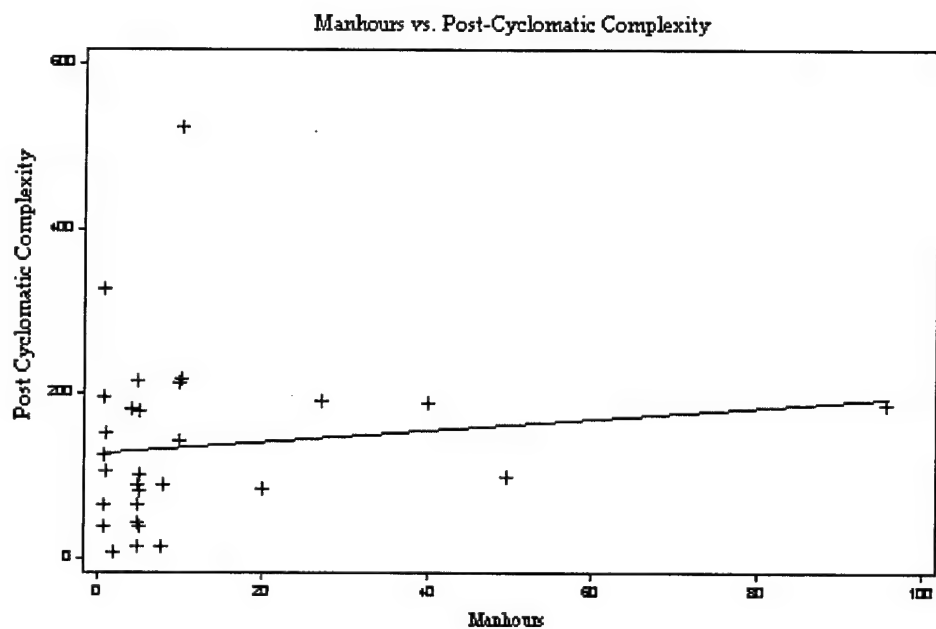
Figure H-4. Manhours vs. Post-Cyclomatic Complexity
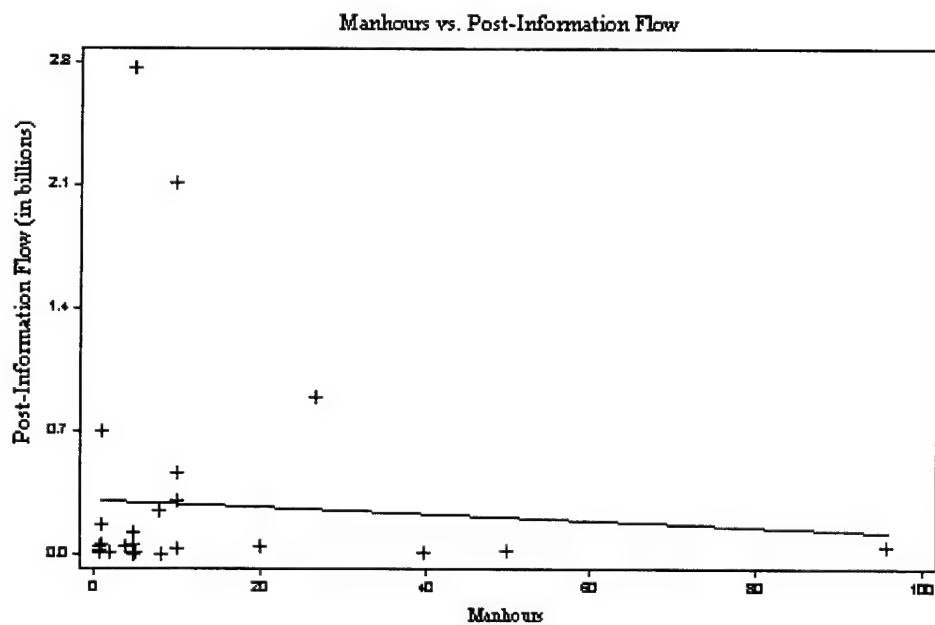
Figure H-5. Manhours vs. Post-Information Flow
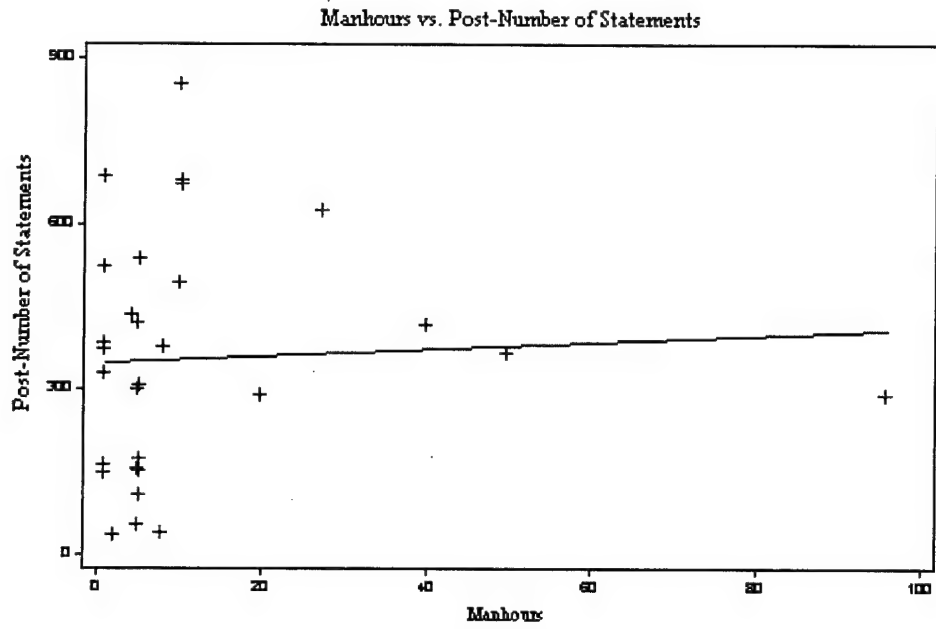
Figure H-6. Manhours vs. Post-Number of Statements
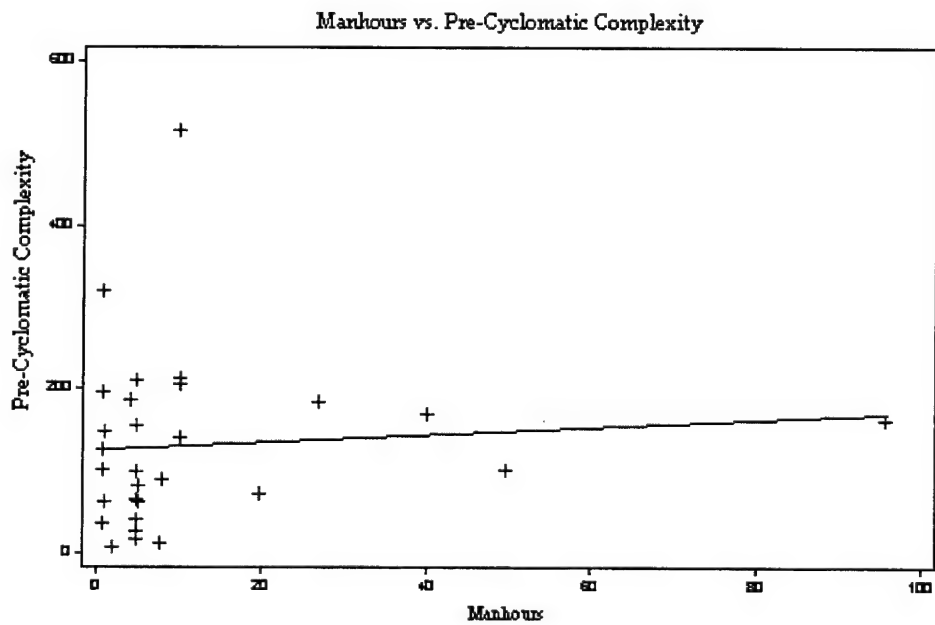
Figure H-7. Manhours vs. Pre-Cyclomatic Complexity
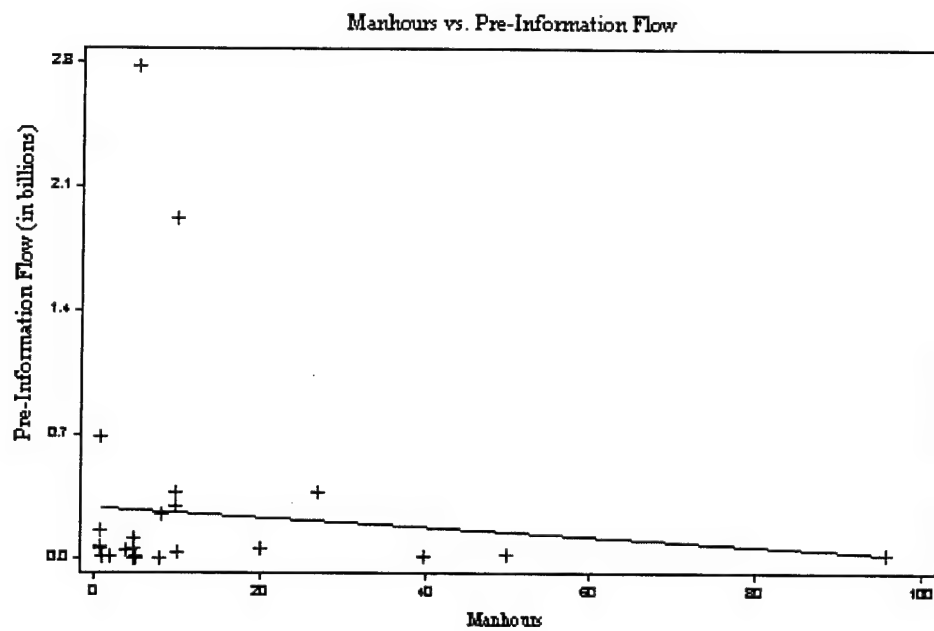
Figure H-8. Manhours vs. Pre-Information Flow
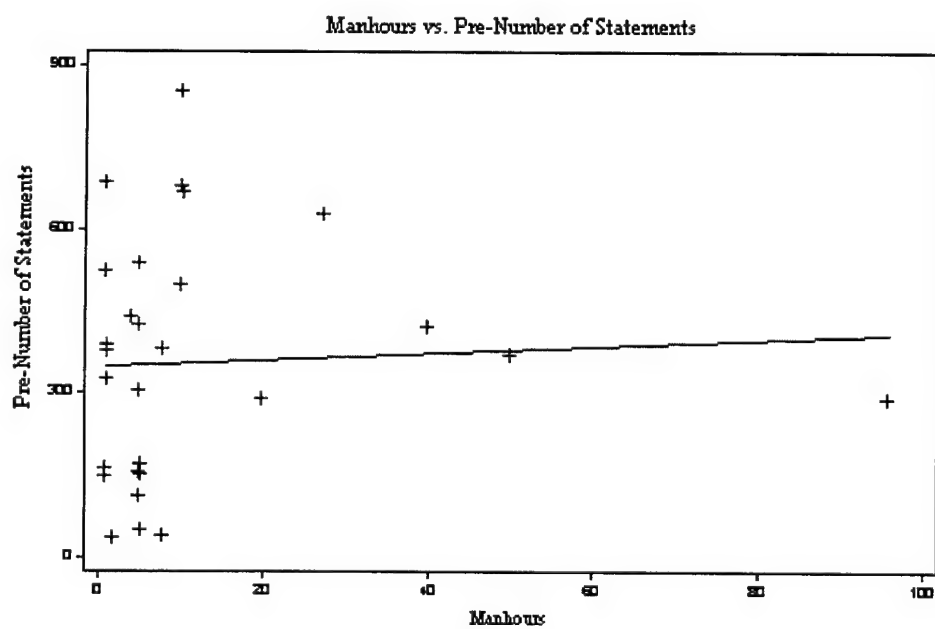
Figure H-9. Manhours vs. Pre-Number of Statements

Product Measures vs. Product Measures

Size vs. Information Flow
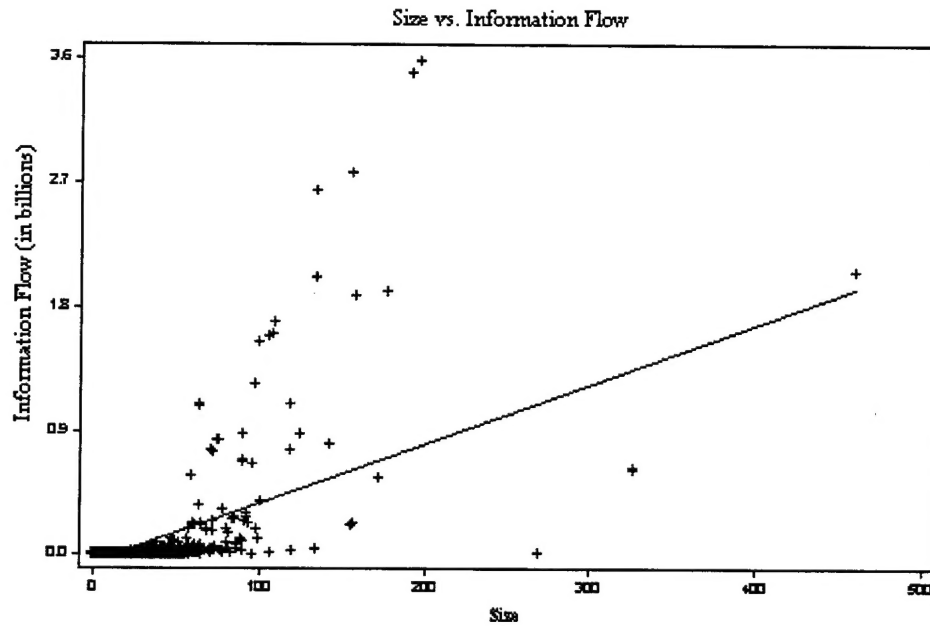
Figure H-10. Size vs. Information Flow

Cyclomatic Comlexity Vs. Size
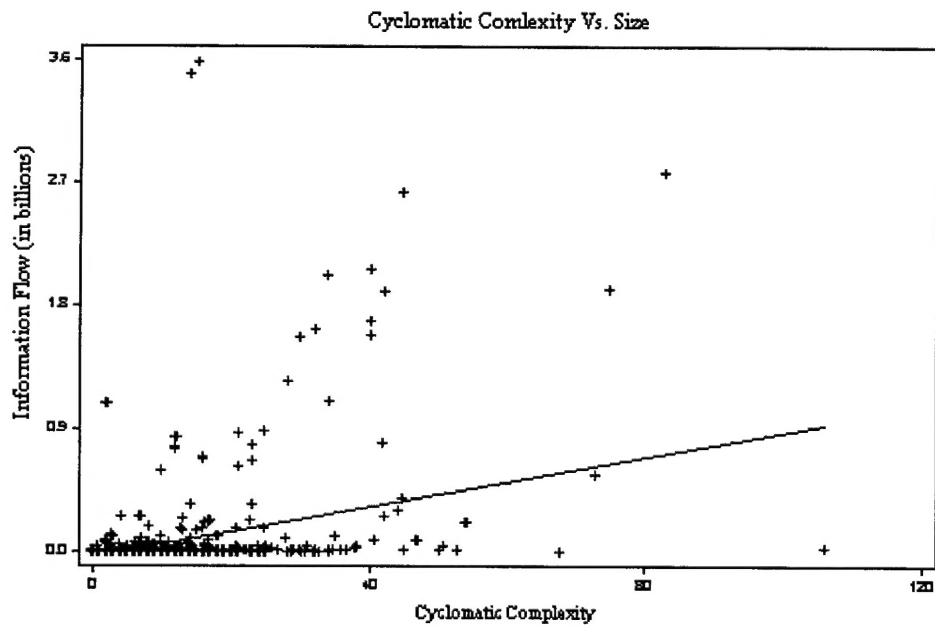
Figure H-11. Cyclomatic Complexity vs. Information Flow
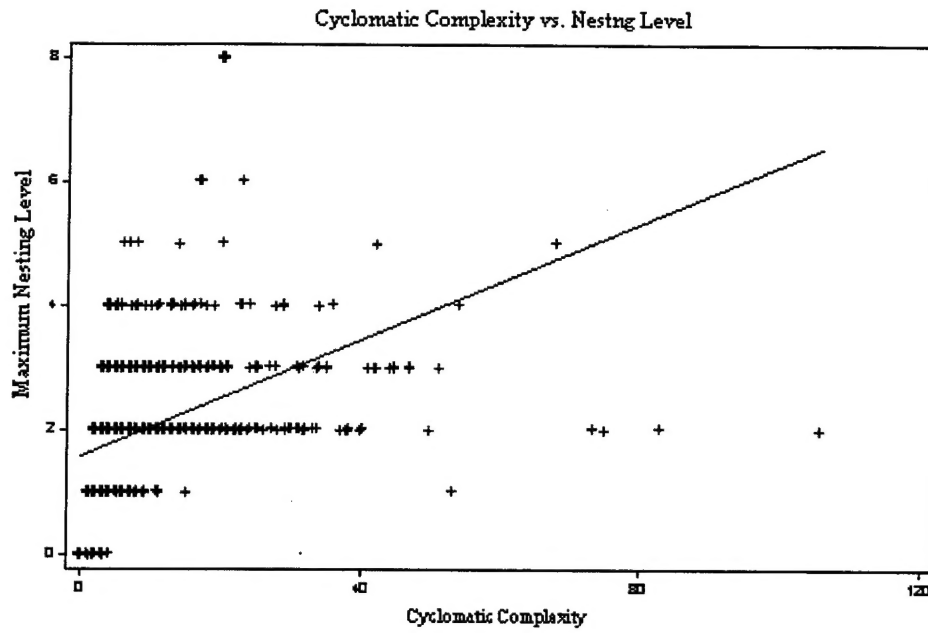
Figure H-12. Cyclomatic Complexity vs. Maximum Nesting Level

Changes in Product Measures
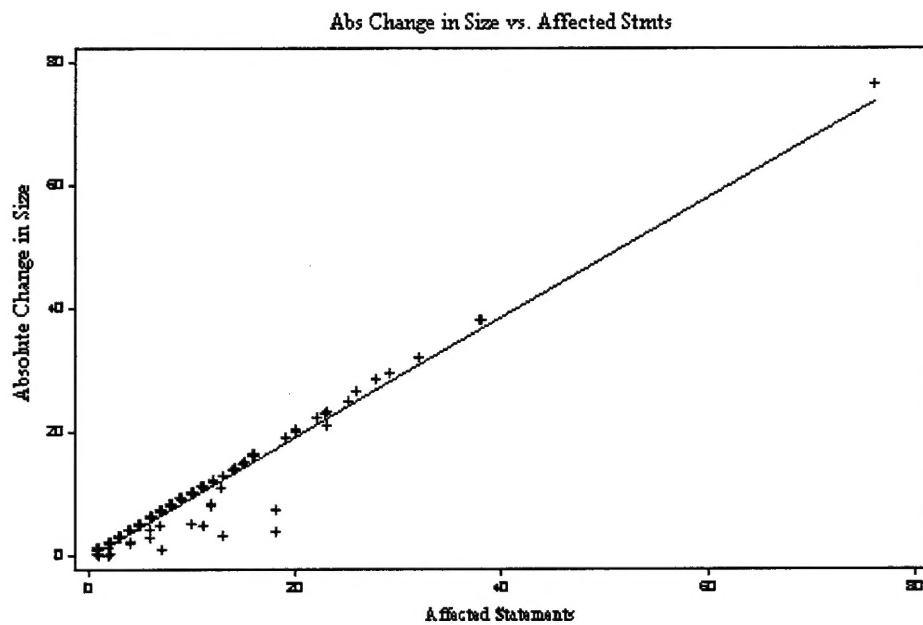
Figure H-13. Affected Statements vs. Abs Change in Size
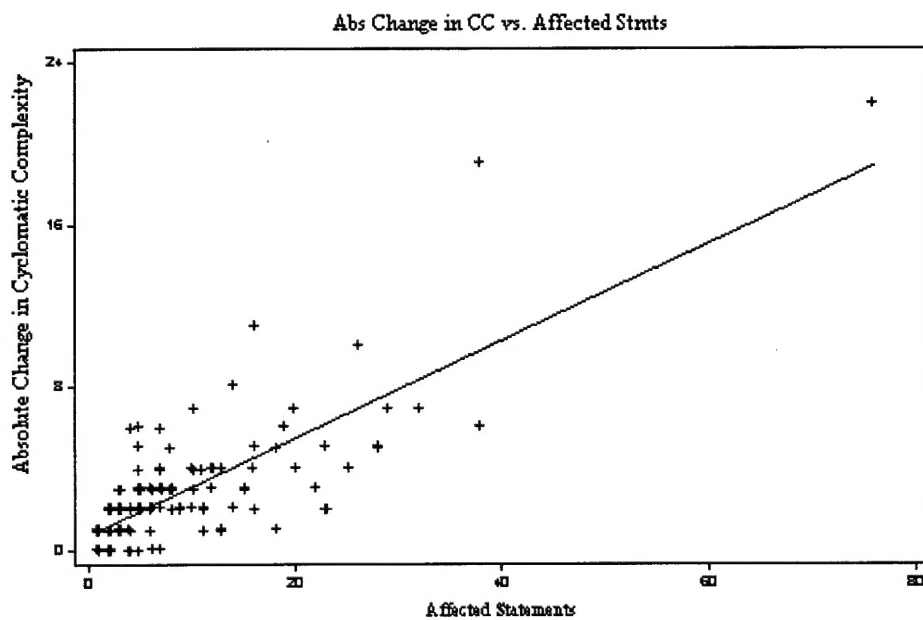
Figure H-14. Affected Statements vs. Abs Change in Cyclomatic Complexity

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	21 Nov 97	Master's Thesis

4. TITLE AND SUBTITLE
An Investigation Into the Use of Software Metrics for Cobol Systems

5. FUNDING NUMBERS

6. AUTHOR(S)
Richard E. Boone, 1Lt, USAF

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
Air Force Institue of Technology,
WPAFB OH 45433-7765

8. PERFORMING ORGANIZATION REPORT NUMBER

AFIT/GCS/ENG/97D-3

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)
HQ AMC/CSS
SCOTT AFB IL

10. SPONSORING/MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION AVAILABILITY STATEMENT
Approved for public release; distribution unlimited

12b. DISTRIBUTION CODE

13. ABSTRACT (Maximum 200 words)

This thesis investigated several hypotheses that specific product measures could be used to predict later software lifecycle process or product measures. It collected software product and process measures from four consecutive major releases of a large Cobol legacy system (400K LOC). The types of product measures used were size and specific complexity measures.

A statistical software package was used to calculate sample correlation coefficients between the measures. A 95% confidence interval was computed for each sample correlation coefficient that showed a strong or moderate linear correlation. The maintenance process measures provided were manhours used for each program changed or added, and defects detected during each change request. Sample correlation coefficients were derived to see if product measures such as size and complexity could reveal trends that could be used to estimate other software lifecycle measures such as effort or defects.

The hypotheses to this research could neither be accepted nor rejected because the process measures collected by the system's owners were recorded at a level too high for sound statistical analysis. Weaknesses are identified in the way these process measures are collected, and suggestions are provided on how process measures can be better identified and recorded.

14. SUBJECT TERMS
Software Engineering, Software Metrics, COBOL, Software Measures, Refine COBOL

15. NUMBER OF PAGES

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
Unclassified	Unclassified	Unclassified	UL

Standard Form 298 (Rev. 2-89) (EG)
Prescribed by ANSI Std. 239.18
Designed using Perform Pro, WHS/DIOR, Oct 94